SPECULUM MUNDI

or

A Glasse representing the Face of the World.

Whereunto is added a Discourse of the Creation, together wth a Consideration of such things as are pertinent to each darns Worke.

Written

By John Swan Mr of Arts late Student of Trinitie College Camb.

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Will: Marshall sculpsit.

SPECVLVM MUNDI.

OR

A GLASSE REPRESENTING THE FACE OF THE WORLD;

Shevving both that it did begin, and muſt alſo end: The manner Hovv, and time When, being largely examined.

WHEREUNTO IS JOYNED an Hexameron, or a ſerious diſcourſe of the cauſes, continuance, and qualities of things in Nature; occaſioned as matter pertinent to the vvork done in the ſix dayes of the Worlds creation.

The ſecond Edition enlarged.

Aug. in Ser. de Aſcen.

Qui ſe dicit ſcire quod neſcit, temerarius eſt.
Qui ſe negat ſcire quod ſcit, ingratus eſt.

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Anno Dom. 1643.

p6.

TO

THE MOST NOBLE

AND ILLUSTRIOUS

IAMES

Duke of *Richmond* and *Lenox*,
Earl of *March*, Baron of *Setrington*,
Darnley, *Terbanten*, and *Methven*,
Lord Warden of the Cinque
Ports, &c.

Knight of the moſt noble Order of the Garter,
and one of his MAJESTIES moſt
honourable Privie Councel:

IOHN SWAN,

by continuing the Dedication of this unworthy Work, wiſheth the continuall increaſe of his Graces Renown upon Earth, and Happineſſe in Heaven hereafter.

To the Reader.

Gentle Reader,

THat curteous entertainment which this book hath hitherto found, cauſeth it to come again abroad; as older, ſo a little larger: not doubting but that men of candid ſinceritie will be readie, not onely to give it a friendly welcome, but alſo to drive away thoſe two immortall enemies, which continually beſiege and aſſault every good Labour, I mean Curioſitie and Envie. The firſt whereof is harboured in the breaſts of thoſe, who (though hard to pleaſe) are crediblie ſuppoſed to be more nice then wiſe. The other, a reſtleſſe wretch; yet fearleſſe enough to them which know her: onely the worſt is, like a filthie flie ſhe ſeeks all over the body for a ſoare, and where ſhe cannot find, ſhe

makes one. I wiſh to be as free as I can from the reach of theſe Readers, committing my poore endeavours to the uſe of ſuch as are more worthy of their mean ſervice. For although I go not about to teach the Learned, yet the Ignorant may be inſtructed in what before they knew not; yea, and the Learned alſo may be occaſioned to call again to mind ſomething which (for the preſent) hath either ſlept or ſlipt their memories by reaſon of their better thoughts, and deeper contemplations. Take therefore in good part what's thus intended towards thee: So ſhall my pains not quite want their recompence, Nor thy ſelf be branded with that filthie mark of foul Ingratitude.

Farewell.

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1. *That the Stars conſiſt moſt of a Fierie matter, and are cheriſhed by the Waters above the Heavens; as was mentioned,* Chap. 4.
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CHAP. IX.

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Sect. 1.

Sect. 1. *Of Beaſts, their properties, names, kindes, &c. together with ſundry emblemes drawn from many of them.*

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CHAP. I.

Wherein is ſhewed that the World neither Was from eternity, nor yet ſhall be extended to eternitie; but that it had both a beginning, and ſhall alſo have an ending: Wherein alſo is conſiderable how that ending ſhall be; as alſo the time When is largely examined.

SECT. 1.

That the world began, and muſt alſo end.

THe Philoſophers of ancient times were diverſly tranſported in the ſtream of their own opinions, both concerning the worlds originall and continuance: ſome determining that it once began; others imagining that it was without beginning, and that the circled orbs ſhould ſpin out a thred as long as is eternitie, before it found an ending. Plato could ſay that it was, *Dei Patris ad genus humanum epiſtola*, an epiſtle of God the Father unto mankind; and that God was Δημιυργὸς, πατὴρ, καὶ πατὴρ τοῦ ὅλου, the Creatour, Maker, and Father of the whole univerſe. But * Ariſtotle ſticked not to affirm that the world neither began, nor yet ſhall end. Yet this his opinion, himſelf being witneſſe, was nothing elſe but a Paradox; and (as without wrong to him may be affirmed) he maintained it rather by way of contradicting others, then for any

Plato in Timæo.

* *Lib.* 1. *de cœlo, cap.* 10. 12. *& lib.* 2. *c.* 1. *lib.* 8 *Phyſ. & lib. de gen. & cor.*

desire of truth, calling it *Problema topicum*, as in the first book of his Topicks, chap. 9. is manifest; and as in *that book written in his old age to King Alexander the Great, he also confesseth. This therefore made * one say, that it was not so much a logicall question, as a thesis or position which Aristotle held and maintained: whose reasons some have called **vain sophistications to obscure the truth, having more wit then matter in them*: and may again be answered by more solid arguments then he alledgeth. For that the world had both a beginning, and must also have an ending, even reason it self, although there were no Scripture for it, is sufficient.

* *Lib. de mundo.*

*Pareus on Gen.

**Inanit sophismata ad obscurandam veritatem, ingeniosè magis quam solidè excogitata. Pareus ibid.*

As first, If the world were eternall, then there would be some memorie given us of the generations of men more ancient then that which Moses mentioneth: but there is none given us; for all other histories are but late in respect of the sacred storie: which is an evident argument, not onely against the eternitie of the world, but also against the fables of the Egyptians, Scythians, and Grecians, concerning their ancientnesse, and the ancientnesse of their acts and deeds of fame.

For indeed (omitting their palpable fictions) when Ethnick writers tell us of any ancient thing, it is either concerning the Thebane or Trojane warre; of *Cecrops*, of *Inachus*, of *Ogyges*, *Deucalion*, or *Janus*; of *Ninus*, or his father *Belus*, or of the warre of the giants, striving to heap mountain upon mountain that they might pull the gods out of heaven. Now all these were either about the dayes of the Judges, Moses, Abraham, or Noah at the furthest. For to whom did they allude by their *Janus* with two faces, but to *Noah*, who saw the times both before and after the floud? Or whom did they point at by their *Gigantomachia*, when, *Pelion* (forsooth) must be set upon *Ossa's* back, and all thrown down with a thunder-crack; whom (I say) did they point

point at, but *Nimrod* and his company, or thoſe who built the tower of Babell, and had their languages confounded for it?

That of the Poet is therefore pertinent, *Lucret. lib. 6.*

——— Si nulla fuit genitalis origo
Terrarum & cœli, ſempérque aterna fuere:
Cur ſupra bellum Thebanum & funera Troja
Non alias alii quoque res cecinêre Poeta?
Quò tot facta virûm toties cecidêre? nec uſquam
Æternis fama monimentis inſita florent?

If that the heavens and earth did not begin,
Had no creation, but remain'd from aye;
Why did not other Poets ſomething ſing
Before the Thebane warre, or fall of Troy?
What are become of great mens many deeds?
They could not die,
But would remain unto poſteritie.

Secondly, thus it may be alſo proved; All things which are to us conſpicuous, conſiſting of matter and form, are of themſelves frail and fading, having ſuch a nature, that they either are or may be ſubject to corruption; but ſuch is the world: and therefore as in reſpect of its eſſence it is finite; ſo likewiſe in reſpect of time it cannot be infinite, but have both a beginning and an ending. For firſt that is properly eternall, which is altogether incommunicable, or which is without beginning, mutation, ſucceſſion, and end: and ſuch onely is God, and not the world. Secondly, it cannot be denied but that there is the ſame reaſon of the whole which is of the parts; ſo that if the parts of the world be ſubject to corruption, then muſt likewiſe the whole world alſo: but the parts are (as we daily ſee) and therefore the whole.

But leaving reaſon, we have a rule beyond it, which is the rule of faith; whoſe firſt aſſertion makes it plain

that the world began; and that Time (by which we meaſure dayes, weeks, moneths, and years) hath not been for ever. For, *In the beginning* (ſaith Moſes) *God created the heavens and the earth:* and why is it ſaid, *In the beginning he created,* but that it might be known (eſpecially to his Church) that the world was not from everlaſting?

Gen. 1. 1.

Divinely therefore did *Du Bartas* ſing, as in the ſound of *Silveſter* we have it,

Du Bartas first day.

Clear fire for ever hath not ayre embrac't,
Nor ayre for aye environ'd waters vaſt,
Nor waters alwayes wrapt the earth therein;
But all this ALL *did once of nought begin.*
Th' immutable divine decree, which ſhall
Cauſe the worlds end, caus'd his originall.

Which whoſoever ſhall deny, he doth but betray his miſery; either becauſe he wants Gods holy word to be his rule, or elſe becauſe he diſdaineth to be ruled by it.

How great a priviledge then is that which even the pooreſt Chriſtian hath above the greateſt and moſt wiſe Philoſopher! And as for the ſcoffing Atheiſt, whoſe peeviſh and perverſe opinion leads him up and down in an affected cloud of ignorance, diſdaining to have faith, becauſe he ſcoffeth at the rule of faith; it is no more then thus with him, he kicks againſt the pricks, and cannot therefore eſcape away unhurt. For, *Sequitur injuſtos ultor à tergo Deus*; God, as a revenger, follows at the heels of a ſinner,

Which many thouſands now can witneſſe well,
Whoſe faults with woe recanted are in hell.

Sect. 2.

The manner of the worlds ending is ſhewed.

BUt concerning the worlds ending, here fitly may ariſe this queſtion, *viz.* Whether it ſhall be deſtroyed according to the ſubſtance, or according to the qualities.

1. If

1. If it be deſtroyed according to the ſubſtance, then it muſt be ſo deſtroyed, as that nothing of it be remaining.

2. If it be deſtroyed according to the qualities, then it ſhall onely be purged, the ſubſtance ſtill abiding.

Now of both theſe opinions there can be but one truth; which I verily think to be in the latter of them. For although it be ſaid in S. Peter, that* *the heavens ſhall paſſe away with a noiſe, and the elements ſhall melt away with heat. &c.* yet it is not ſo farre forth to be underſtood, as that in their ſubſtances they ſhall be quite burnt up; but rather that they ſhall be purified in their vicious qualities, which the vanity of ſinne hath laid upon the model of the whole world. And this S. Paul points at when he ſaith, that* *the creature it ſelf ſhall be delivered from the bondage of corruption into the glorious liberty of the ſonnes of God. For we know* (ſaith he) *that the whole creation groneth & travaileth in pain together untill now.* And again in the hundred and ſecond Pſalme, where the Prophet ſaith that* *the heavens and the earth ſhall periſh, and wax old*; he ſheweth that their periſhing ſhall onely be a changing: *For as a veſture ſhalt thou change them, and they ſhall be changed.*

* 2. Pet. 3. 10.

* Rom. 8. 21, 22.

* Pſal. 102. 26.

Whatſoever therefore is ſpoken of their conſuming, paſſing away, and periſhing, is meant onely in reſpect of their corruptible qualities, the ſubſtance ſtill abiding: and ſo ſhall the fire at the laſt day ſerve for a purging, not for an utter conſuming. There ſhall indeed be nothing unchanged, becauſe all things ſhall be renewed, and each thing brought into a perfect ſtate, Acts 3. 21. *A new heaven and a new earth.* 2. Pet. 3. 21. Not new by *creation*, but by *commutation*; *Non per interitũ priſtinorum, ſed commutationem in melius*, as ſaith* S. Hierome; *Not by a deſtruction of the old, but by a change into a better.*

* Hier. on Iſay.

Which thing is yet further ſeen even in the little

world Man, who is the Epitome of the greater world it ſelf. For he, in the ſubſtance of his bodie, ſhall not be deſtroyed, but changed; and in ſtead of corruption ſhall put on incorruption, as ſaith S. Paul; beholding at the laſt day his Redeemer, *not with other* (ſaith Job) *but with theſe ſame eyes.* In like manner, the greater world, in ſtead of corruption, ſhall (I verily think) put on incorruption; and being purged by the fire, ſhall be delivered * *into the glorious libertie of the ſonnes of God.* It ſhall not be delivered onely in the libertie of the ſonnes of God; that is, when they are delivered: but it ſhall be delivered εἰς τὴν ἐλευθερίαν, into their libertie; as it is Rom. 8. 21. If it were onely in their libertie, or when they are delivered; then in ſtead of a changing, there might be a conſuming: which is in ſome ſort a deliverie; becauſe (although quite taken away) there is then no longer a ſubjection unto vanitie: but ſeeing it is into the libertie of the ſonnes of God, it ſhall (like mans glorified bodie) put on incorruption; and ſo, *ſuo modo*, in its kind, be partaker of an incorruptible ſtate.

1 Cor. 15. 53. Job 19. 26.

* Rom. 8. 21.

The creatures remaining at the worlds ending.

But in this changing, I think we may fitly exempt all ſuch creatures which now ſerve onely for the neceſſity of mans life; as thoſe which be for food, clothing, and the like: becauſe then (at the end of the world I mean) there ſhall be an end likewiſe of all ſuch needs.

Yet there are thoſe who comprehend the brute beaſts alſo, and other creatures having ſenſe and life, within the limits of this libertie: but they do ſomewhat qualifie their meanings; as thus: They ſhall not be partakers of the glorie of the ſonnes of God; yet in their kind they ſhall be fellows with them in that glorious ſtate, like as once they were in Paradiſe, before man had fallen. But whether I may embrace this opinion, I know not; and that in regard of the foreſaid reaſon: unto which others alſo aſſent, * ſaying, *Iſtas naturas rerum non manſuras in extremo*

* *Pet. Mart. loc. com.* See alſo Dr. Willets Hexap. on Rom. chap. 8. quæſt. 34.

extremo die, niſi aliquid opus habitura ſint. Wherefore we may rather relie upon this, without any ſuch ſpeciall reſpect unto thoſe creatures; namely, That the worlds fabrick, conſiſting of heaven and earth, ſhall not be deſtroyed, but renewed according to the qualities, by the purging fire. For *the moon ſhall ſhine as the ſunne, and the light of the ſunne ſhall be ſevenfold*, as ſaith the Prophet Eſay, chap. 30. 26. which S. Hierome expoundeth thus, viz. that the ſunne and moon ſhall receive that admired augmentation of light, as a reward of their labours. Yea and * Zachary alſo witneſſeth that there ſhall be but one perpetuall day: for there ſhall be ſo great light that there ſhall be no difference between day and night; as ſome obſerve from thence. Neither is it a marvel, ſaith * Chryſoſtome, that the creatures ſhould at that time be illuſtrated with ſo great ſplendour and light: for kings, upon the day when they inaugurate their ſonnes, are wont to provide, not onely that they may come forth with all ſingular pomp and appearance; but alſo that their ſervants may be well adorned. Much more therefore may we think, when Chriſt ſhall ſit in glorious majeſtie upon his throne, and the juſt, who are the ſonnes of God, ſhall be admitted to their paternall heritage and kingdome, that then God Almightie ſhall cauſe that all his creatures be decked with an extraordinary brightneſſe, beautie, and luſtre. For although it be * ſaid that the moon and the ſunne ſhall ſhine no more, but rather that the Lord himſelf will be for an eternall light; yet it meaneth not that thoſe ſtarres ſhould periſh, but that the uncreated light ſhall be * more glorious. So that as now the greater light obſcures the leſſe, ſo in like manner it ſhall be then when we come into that citie which wanteth not the ſunne or moon. It is not ſaid, *Solem & lunam non habebit; ſed, Non indigebit, ut luceãt in ea*: that the city ſhall have no ſun & moon; but that it ſhall not want them

* Zach. 14. 7.

* *Pet. Mart. ex Chryſoſt.*

* Eſay 60. 19. Revel. 21. 23.

* *Pere. in Apoc. cap. 21.*

them to ſhine in it: ſilently declaring, that then indeed ſhall be thoſe luminaries: yet they ſhall not then perform, as now, the ſame uſes of light, being ſubject to motion, and an inceſſant wheeling up and down to cauſe a riſing and ſetting, yea and to diſtinguiſh one time and day from another: For time is but a ſpace borrowed, and ſet apart from eternitie, which muſt at the laſt return to eternitie again. This for the heavens.

Matth. 5. 5.

And as for the earth, our Saviour promiſeth, amongſt other bleſſings, a bleſſing to the meek, ſaying, that they ſhall inherit the earth: which promiſe of his (ſaith * one) we ſee is not performed in this world; and therefore to be then expected, when there is a new heaven and a new earth for the ſaints of God; and when the whole creation (which now groneth) ſhall be delivered into the glorious libertie of the ſonnes of God. Thus ſome.

* *Dr Willet, Hexap. in Rom.*

But in this new heaven and earth we muſt not expect any terrene pleaſures, as the carnall Jews do dream, as the Turks believe, or as that Heretick *Cerinthus* held, and after him the *Millenaries* or *Chiliaſts*: becauſe ſuch pleaſures are fading, and corruptible; joyes farre unfit for ſaints, whoſe very bodies have put on incorruption. We look therefore for new heavens and a new earth wherein dwelleth righteouſneſſe, as ſaith S. Peter, 2. Pet. 3. 13. and ſpirituall delight unto eternitie, as in Pſal. 16. 12.

And further, ſeeing it is ſaid that righteouſneſſe ſhall dwell in the new earth as well as in the new heaven, it may from thence be gathered, that both the heaven and the earth ſhall be the ſeat of the bleſſed; and that the ſaints ſhall * follow the Lambe whitherſoever he goeth; and that there ſhall be an intercourſe between the ſaid heaven and earth: which is, as Jacob in his * viſion ſaw, when the angels were ſome of them aſcending, ſome deſcending that ladder which reached from heaven to earth:

* Revel. 4. 14.

* Gen. 28. 12.

earth: or as * Moſes and Elias were ſeen talking with Chriſt upon the Mount. * Matth. 17. 3.

But herein let us not be too bold; for in this we may ſoon wade too farre: namely if we ſhould nicely determine how the ſaints ſhall then be diſpoſed of; whether ſome alwayes to the heaven; ſome alwayes to the earth; or ſuch like things which to us are unrevealed.

Let it therefore ſuffice, that although the manner of this change be ſecret, and not known in every point, yet the change it ſelf is moſt certain: and therefore hold we moſt certainly this truth for our ſtay, that the world ſhall end; and leave we the manner thereof to be exactly and particularly revealed by him, who will very quickly perform it. But of the time when, in the following Section.

Sect. 3.

AND thus much concerning the manner of the worlds ending.

Now follows the time when. But here I purpoſe not to meddle with any thing which ſhall tend to the preciſe ſcanning of it. I will leave that to them, who, out of a deſire they have to lanch into the deep, have pried too farre (I fear) into the ſecrets of the Thunderer: for oftentimes we ſee that they do but wiſely tell us fooliſh tales, and ſmoothly bring long lies unto an end, becauſe they ſay more then they have warrant for: To whom *Du Bartas* by our famous *Silveſter* thus ſendeth greeting, Of the time when the world endeth.

You have miſ-caſt in your Arithmetick,
Miſ-laid your counters, gropingly ye ſeek
In nights black darkneſſe for the ſecret things
Seal'd in the Caſket of the King of kings.
'Tis He that keeps th'eternall clock of Time,
He holds the weights of that appointed chime,
And in his hand the ſacred Book doth bear
Of that cloſe-claſped finall CALENDER,

Where,

Where, in Red letters (not with us frequented)
The certain Date of that Great Day is printed;
That Dreadfull Day, which doth ſo ſwiftly poſt,
That 'twill be ſeen, before foreſeen of moſt.

Yet ſuch is the folly and curioſitie of many, that they will needs undertake to tell us when this time ſhall be: which if they could, then it ſeems it ſhould not come as *a* * *ſnare* upon the world, nor yet ſteal upon us as *a thief in the night:* But ſo it ſhall do. For *of that day and houre knoweth no man*, ſaith our Saviour: & we may take his word; becauſe himſelf by his humanity could not know it: although in his humanitie, by reaſon of his Godhead, he was not ignorant of it. Had he not therefore been God as well as man, and of a divine as well as humane nature, he muſt have remained ignorant in it both with men and angels, Mar. 13. 32. And furthermore concerning us, that we be not too bold, the ſame leſſon which he taught his diſciples is alſo ours, not *to know the times or the ſeaſons which the Father hath put in his own power*; as it is Act. 1. 7.

* Luke 21.35. 2.Pet.3.10. 1.Theſſ.5.2. Revel.16.15.

From whence we may learn, that whileſt we exerciſe our ſelves in things that be too high for us, we ſhall ſooner betray our own curioſitie, then deliver a truth. For, *Maxima pars eorum quæ ſcimus, eſt minima pars eorum quæ neſcimus*; The greateſt part of thoſe things which we know, is the leaſt part of what we know not.

Whereupon I cannot but think that the predictions of men in this kind (eſpecially ſeeing they are ſo various) muſt needs be as true as thoſe amongſt the brood of preſumptuous Aſtrologers concerning the end of Chriſtian Religion, which (as * *Du Pleſſie* obſerveth from them) ſhould have been ſome hundreds of years before this time, nay it ſhould then have ended, when indeed it began moſt of all to flouriſh: And ſo I doubt not, but am certain, that the world alſo ſhould have had many end-

* *De verit. Chriſt. Relig.*

ings

ings before this time, according to the doting froth of ſome mens idle phancies; which, if need were, I could relate. But as time was little beholding to them for cutting it off ſo ſhort; in like manner they were as little beholding to time for diſcovering their lies ſo plainly.

I will therefore (before I meddle further with ſuch approved liars) leave them unto their beſt friends to gain (if they can) their credit for the time paſt, and addreſſe my ſelf to examine thoſe who talk of a time yet to come.

Amongſt whom the Jews have a tradition, which although they fetch from the ſchool or houſe of Elias, yet we are not bound to credit it: For it was not Elias the Prophet, but a Rabbin of the ſame name, as the learned know; and who more fabulous, or more full of vain phancies, then thoſe their greateſt Doctours?

Six thouſand yeares (ſaith he) the world ſhall ſtand, and then it ſhall be conſumed by fire. Two thouſand years ſhall be void or without Law; two thouſand years ſhall be under the Law; and the laſt two thouſand ſhall be the dayes of Meſſiah or Chriſt. Thus farre Elias. And that this opinion hath been favoured by * ſome of old, and is alſo favoured now by ſome of our time, I am not ignorant: which chiefly they do for this reaſon; namely, becauſe the ſix dayes of weekly labour do bear the Symbole of 6000 yeares, wherein mankind ſhould endure the cares, and troubles, & travels of this world; and then ſhall come that Sabbath of Sabbaths in the heaven of heavens, when they are to reſt from their labours. Or as God was ſix dayes in creating the world before there was a Sabbath: ſo he ſhall be 6000 yeares in governing it; and then the ſeventh begins an eternall reſt in heaven.

Now this they ground upon the words of S. Peter; who, ſpeaking of the day of judgement, noteth that a thouſand yeares in Gods ſight are but as one day, and one day as a thouſand yeares, 2. Pet. 3.8. So that in this regard,

* It was favoured by Juſt. Martyr, Ireneus, Lactantius, Hierome, &c. but diſallowed by Ambroſe and Auguſtine. See Auguſtine in expoſit. Pſal. 90.

regard, for ſix dayes of weekly labour, they would have 6000 yeares of worldly trouble, and the like, before it endeth.

But if this weakneſſe be the greateſt ſtrength for maintaining their aſſertion, then I do not doubt to ſee their cauſe fainting upon the ground, as not being able to ſubſiſt, or ſtand upright.

For firſt concerning the Rabbin, had he been a Prophet, he would certainly have been a better Seer. This I am ſure of, that he was much deceived in the particular diviſion of his time, in making three periods, all of 2000 yeares apiece. For although the yeares of the world have been diverſly accounted by ſundry authours; yet you ſhall not find the Rabbins juſt number of 2000 yeares, from the Creation to the Law, in any of them. *Scaliger*, *Calviſius*, *Helvicus*, *Funccius*, *Bucholcerus*, & others, who reckon the feweſt yeares, do account 453 above two thouſand; and yet they reckon not ſo many as they ſhould by almoſt 60 yeares: ſome ſay altogether 60. as may be ſeen by *Calvin*, *Junius*, *Pareus*, *Ainſworth*, or Dr *Willet* on Geneſis; beſides many excellent Chronologers: eſpecially Sr *W. Ralegh* (that learned Knight) who in his hiſtorie of the world makes it plain.

And not onely doth this Elias fail in his firſt diviſion, but in his ſecond alſo: For from the Law to the death of Chriſt are not 2000 yeares; there be wanting well near 560 to make them up. As for example, take a view again of *Scaliger*, *Calviſius*, *Helvicus*, or our countrey-man Mr *Broughton*, or *Bucholcerus*, or *Funccius*, and ſee if it be not even ſo. *Bucholcerus* (I think) wanteth the feweſt, and yet it is manifeſt that he falleth ſhort of 2000. Whereupon it may be ſeen that in his firſt diviſion (which is for the time before the Law) he overſhoots; And in his ſecond diviſion (for the time under the Law) he is too ſhort; imitating a bad

bad archer, who tries, but cannot hit the mark.

If then for the time paſt the Rabbin is found to be faulty, why ſhould we be ſo mad as to give credit to him for the time which is yet to come? Queſtionleſſe as he hath deceived us in the one, ſo likewiſe he will deceive us in the other; and therefore he is to be ſlighted and nothing credited at all. Yea ſaith* one, *Dictum Eliæ non eſt authenticum. Valet quidem adverſus Judæos (qui vaticinium illud admittunt) ad probandum veniſſe Meſſiam, cùm jam elapſi ſint anni quinquies mille & 560: ſed ad finem ſeculi demonſtrandum nihil valet.* That is, The ſaying of Elias is not authentick. It maketh indeed againſt the Jews (who entertain that prophecie) to prove that the Meſſias or Chriſt is come, ſeeing there are* 5560 years of the 6000 alreadie runne out: but it prevaileth nothing to ſhew the end of the world, for which cauſe it was chiefly intended.

* Zanch. Tom. 7. Prælect. de fine ſeculi.

* Note that the years from the Creation are now many more.

But come we now to the examination of that forenamed place in Peter, which is brought as an help to uphold the Jews opinion, becauſe a day taken for a thouſand years, and applied to the weekly dayes, ſeemeth to point out ſix thouſand years: ſo ſome imagine. But without doubt the Apoſtle meant no ſuch thing: nor yet had in his mind to ſet down any ſtrict manner of accounting times, peculiar to the court of heaven: For mark but the circumſtances of the place, and view well the occaſion given him to ſpeak ſo as he did of the Lords coming to judgement, and then you ſhall ſoon find, that it was to comfort the godly againſt the cavils and reproches of the wicked; who, becauſe the time ſeemed long to them, did thereupon mock at the promiſe of his coming, taking it as if he would not come at all. For, *Where is* (ſay they) *the promiſe of his coming? ſince the fathers fell aſleep, all things continue as they did from the beginning*, &c. Which is as if they ſhould ſay, Is it not a great

2. Pet. 3. 4.

great while ſince the world began, and yet what alteration can we ſee in it? yeſterday was as is this day: men are born & die as orderly as they ever did: Nature keeps her courſe, and the like: Wherefore if the Judge had meant to come or ſhew himſelf at all, he would not ſurely that his coming ſhould be thus long deferred, but would rather have ſhewed himſelf before thus many yeares could poſſibly be born. Thus, or after this manner, ſuch mockers reaſoned and cavilled with S. Peter: which cavill of theirs is agreeable to that of S. *Paul, where he mentions ſuch as did not believe the Reſurrection, but were like-minded with theſe who mocked at the ſlackneſſe of Chriſts coming to judgement.

*1. Cor. 15. 12.

Saint Peter therefore, that he might * comfort the weak and confute the wicked, ſheweth how to anſwer this there faithleſſe objection; namely thus, That although the time be long in reſpect of us, yet to God (with whom there is no time either long or ſhort) it is not ſo. A day compared with an houre, to us may ſeem long: But a thouſand yeares compared with a day, to God they ſeem but ſhort; for what is time to eternitie? And therefore, although that day to the faithleſſe ſeems ſo to be taken away, or deferred rather, as if it were not, or would not come becauſe it quickly came not; yet know that it is not quite taken away. For (as the ſame Apoſtle ſpeaketh at the 9 verſe) *God is not ſlack in his promiſes as ſome account ſlackneſſe; but is long-ſuffering to us-ward, not willing that any ſhould periſh, but that all ſhould come to repentance.* And this (queſtionleſſe) was the Apoſtles meaning, farre differing from their phancies who from hence would fain gather that for one day God uſeth to account a thouſand yeares, and a thouſand yeares for one day. *Hic ſermo* (ſaith * one) *eſt de æſtimatione hominum, qui non æquè æſtimant tempus longum & breve.* This ſpeech is according to the eſtimation of men, who

* It was but to ſhew (ſaith S. Auguſtine) *contemnendam futuri temporis breviatem.*

* *Marlor. in Pet.*

who do not equally eſteem of times long and ſhort.

Which alſo doth yet further appear by that in the 90 Pſal. at the 4 verſe. Where, as there is a compariſon likewiſe between 1000 yeares and one day; ſo alſo, in reſpect of God, a thouſand yeares are compared to that which is leſſe then a day, namely to a watch in the night. For (ſaith the Prophet) *God turneth man to deſtruction, and then he ſaith, Turn again ye children of men. For a thouſand yeares in thy ſight are but as yeſterday, and they are gone as a watch in the night.* To which purpoſe S. *Hierome* ſpeaketh alſo fitly, ſaying, *Æternitati comparatũ omne tempus eſt breve*; that is, All time compared with eternitie is but ſhort time, yea indeed as no time. And again, did not *Zanchius* worthily find fault with *Irenæus* and *Lactantius* concerning theſe things? Undoubtedly he did; affirming that their opinion was contrary to the word of God: For our Lord himſelf ſaith, that none can know, &c. Whereas (ſaith he) if this ſentence of the 6000 yeares were true, then the time might be known.

Hierome on Jer.

Zanch. Tom. 7. Prælect. de fine ſeculi.

Let therefore they, who will, embrace this phancie of ſix thouſand yeares for the whole time of the worlds continuance; I cannot: For ſure I am, that the tradition of Elias hath greatly failed for the time that is paſt: if therefore it ſhould be true for the time which is yet to come, it were more then an unheard of wonder: and as for the argument taken from S. Peter to uphold it, how his meaning hath been thereby forced, is declared.

Yet nevertheleſſe I will not deny but that the world may ſtand ſix ages before it endeth; and ſo the ages, although not the yeares, may be compared to the ſix dayes of weekly labour: and that the ſeventh age ſhall begin at the reſurrection, as was figured in Henoch the ſeventh from Adam, who died not as did the ſix before him, but was taken up into heaven. Unto this I aſſent as probable. But that each age ſhould have a thouſand yeares, is ſtill denied;

The world hath ſix Ages, but not reckoned by thouſands of years.

denied; and as in ſetting them down according to Scripture will be manifeſt.

The firſt is from the creation to the floud: and this by S. Peter is called the old world, 2. Pet. 2. 5.

The ſecond is from the floud to Abraham.
The third, from Abraham to David.
The fourth, from David to the captivitie.
The fifth, from the captivitie to Chriſt.
} Matth. chap.1.

The ſixth is the time after Chriſt; called in many places the laſt age, and the laſt of times: as in Hebrews, ch.1. 1. *God* (ſaith the Apoſtle) *who at ſundry times and in divers manners ſpake unto the fathers by the Prophets, hath in theſe laſt dayes ſpoken to us by his Sonne.* And again, S. Peter calls this the laſt of times, 1. Pet. 1.20. S. John alſo ſaith, *Little children, it is the laſt time*, John 2. 18.

Theſe I grant to be the ſix ages of the world: but who is ſo mad as to ſay or think that there were juſt thouſands of years betwixt each or any of them? The Septuagints make more then thouſands between ſome of them: and the Hebrews, they make leſſe; excepting the firſt age. Yet if you will know their lengths according to that which is none of the worſt accounts, take them thus: and this account I may afterwards prove in another work.

The firſt hath 1656 years.

The ſecond (if we end it at the beginning of Abrahams peregrination and giving of the promiſe) hath the juſt number of 427 years.

The third (if we end it at the death of Saul and beginning of Davids kingdome after him) containeth the number of 866 years.

The fourth (if we begin the captivitie in the firſt yeare of Nebuchadnezzar) hath 451 years.

The fifth containeth the length both of the Chaldean, Perſian, and Grecian Monarchies; together with ſo much

much of the Romane greatneſſe as was paſt before Chriſt came into the world: amounting in all to the ſumme of 523 years, or thereabouts; although we reckon no further then the birth of Chriſt. But go rather to his baptiſme, and then this age is 553. And as for the captivity (formerly mentioned) begin it rather in the 19 yeare of Nebuchadnezzar; and in the ſtead of 451, account 471.

The ſixth and laſt hath ſo many years as are from the time of mans redemption untill now: for hitherto this age hath continued, and ſhall not be ended untill the * laſt trumpet be blown, and *Surgite mortui, venite ad judicium*, Ariſe you dead, and come to judgement, be ſounded in our eares.

* 1 Cor. 15. 52. Revel. 10, 5, 6.

To which purpoſe, divine *Du Bartas*, that noble Poet, brings in our father Adam, ſpeaking of theſe ages thus: ſetting them down, as if the ſpeech had been uttered by him to his ſonne; ſaying,

Du Bartas in the handy-crafts.

The Firſt begins with [1] *me: the Seconds morn* — 1. Adam.
Is the firſt [2] *Ship-wright, who doth firſt adorn* — 2. Noah.
The hills with vines: that [3] *Shepherd is the Third,* — 3. Abram.
Who after God through ſtrange lands leads his herd,
And (paſt mans reaſon) crediting Gods word,
His onely ſonne ſlaves with a willing ſword.
The fourth's another valiant [4] *Shepherdling,* — 4. David.
That for a cannon takes his ſilly ſling,
And to a ſceptre turns his ſhepherds ſtaff;
Great Prince, great Prophet, Poet, Pſalmograph:
The fifth begins from that ſad [5] *Princes night* — 5. Zedekiah; or the captivity.
Who ſees his children murdered in his ſight;
Or from poore Judahs dolefull heavineſſe,
Led captives on the banks of Euphrates.
Hoped [6] *Meſſias ſhineth in the Sixth;* — 6. Chriſt.
Who, mockt, beat, baniſht, buried, crucifixt
For our foul ſinnes, (ſtill ſelfly-innocent)
Muſt fully bear the hatefull puniſhment:

7 The eternall ſabbath.

The 7 *Laſt ſhall be the very reſting-day;*
Aire ſhall be mute, the waters works ſhall ſtay;
The earth her ſtore, the ſtarres ſhall leave their mea-
The ſunne his ſhine: and in eternall pleaſures (ſures,
We plung'd, in heaven ſhall aye ſolemnize all
Th' eternall ſabbaths endleſſe feſtivall. Thus far he.

But from hence I proceed; and on the ſudden I have met ſome other ſorts of calculatours. For ſo various are mens ſearching heads, that theſe things have not onely been boulſtered out by Rabbinicall traditions, ſabbaticall ſymboles, and the like; but alſo by ſundry other phancies.

Impoſtours and falſe Prophets concerning the worlds ending.

Some have pretended revelations, and thereby deluded many. Amongſt whom learned *Gerard makes mention of a certain woman of Suevia in Germanie, who was called *Thoda*; & ſhe, in the yeare of Chriſt 848, propheſied that by the apparition of an Angel it was revealed unto her, that the world ſhould end that very yeare. After whom there were others as true prophets as her ſelf: namely in the years 1062, 1258, 1345, 1526, 1530. &c. He in the yeare 1526, ran up and down the ſtreets, in the citie of S. *Gallus* in *Helvetia*, crying with horrid geſtures, that the day of the Lord was come, that it was preſent. And he in the yeare 1530, did ſo ſtrongly prevail with ſome, that he perſwaded them the laſt yeare of the world was come; whereupon they grew *prodigall of their goods and ſubſtance, fearing that they ſhould ſcarcely ſpend thē in ſo ſhort a time as the world was to continue. But this ſurely was an Anabaptiſticall trick, and a chip of that block which maketh all things common; boaſting of the abundance of viſions & dreams

*Ger. loc. com. Tom. 9. pag. 182.

Ibid. ut antea.

Others have pitched upon certain Mathematicall revolutions, and thereby conſtituted a time: amongſt whom *Joannes Regiomontanus* is ſaid to be one, who partly thought that the yeare 1588 ſhould adde an end to the world; becauſe at that time was a great conjunction of Saturn,

Saturn, Jupiter, & Mars. Upon which occaſion I remember theſe verſes,

Poſt mille expletos à partu Virginis annos,
Et poſt quingentos rurſus ab orbe datos,
Octogeſimus octavus mirabilis annus
Ingruet; is ſecum triſtia multa trahet.
Si non hoc anno totus malus occidet orbis,
Si non in nihilum terra fretúmque ruent;
Cuncta tamen mundi ſurſum ibunt atque deorſum
Imperia: & luctus undique grandis erit. That is,

When from the Virgins * birth a thouſand years
With full five hundred be compleat and told,
The Eightie Eighth a famous yeare appears,
Which brings diſtreſſe more fatall then of old.
If not in this yeare all the wicked world
Do fall, and land with ſea to nothing come;
Yet Empires muſt be topſie turvie hurl'd,
And extream grief ſhall be the common ſumme.

* Or from the time of Chriſt born of a Virgin.

Which what it was, the event hath ſhewed.

Others again dream of ſecrets in Cabaliſticall concluſions: Which have lately ſhewed themſelves to be but idle phancies, in a book called *Ecce Sponſus venit.*

Some ſubſcribe to Analogies taken from Jubilees, or from the years of Chriſts age, and the like.

Yea, and to omit many, ſundry others have their tricks and devices in Arithmeticall numbers, whereby they can directly calculate the time, and make the ſuperſtitious multitude admire them, and lend a more then greedie eare to their feared predictions.

Such a one was he, who out of theſe words, MUNDI CONFLAGRATIO, which ſignifie *The burning of the world*, hath ſet down the time when the world muſt end; namely in the yeare of our Lord 1657: and that for two reaſons. Firſt, becauſe as the yeare of the world 1657 was a fatall yeare, in regard of the

A crotchet to ſhew that the world muſt end in the yeare 1657.

universall floud, which then came and drowned all the world: In like manner the yeare of Christ 1657 shall also be a fatall yeare, in regard that then shall be the end of the world by fire: for is it not said in Matthew, *As it was in the dayes of Noah, so shall also the coming of the Sonne of man be?* Matth. 24. 37.

MUNDI CONFLAGRATIO
1000
5
500
1
100
50
1
1657.

Secondly, take these two words, namely, MUNDI CONFLAGRATIO, which signifie in English *The burning of the world*, and you shall find in them so many numerall letters as will make 1657, if they be all added together; as in the margent may be plainly seen. For in the first word MUNDI there are M, V, D, and I; which are all numerall letters: and in the other word, namely CONFLAGRATIO, C, L, and I, are likewise letters of number; and how much every one of them doth signifie is easily known: amounting in the whole summe to 1657.

Thus, upon these two phancies, is this prediction grounded: which that it is altogether idle may easily appear.

For first concerning the universall floud which they urge; that yeare was indeed a fatall yeare to the world when it came: but that it came in the yeare of the world 1657, is denied: for it came, not when Noah was 600 years compleat; but when he was in the six hundredth yeare current of his age: and so the yeare of the world was not 1657, but 1656. As for example;

Seth was born to *Adam*, when he was	130. Gen. 5. 3.
Enos to *Seth*, when he was	105. Gen. 5. 6.
Kenan to *Enos* when he was	90. Gen. 5. 9.
Mahalaleel to *Kenan*, when he was	70. Gen. 5. 12.
Jared to *Mahalaleel*, when he was	65. Gen. 5. 15.
Henoch to *Jared*, when *Jared* was	162. Gen. 5. 18.
Mathuselah to *Henoch* when *Hen.* was	65. Gen. 5. 21.
Lamech to *Mathuselah*, when *Ma.* was	187. Gen. 5. 25.

Noah

Noah to *Lamech*, when *Lamech* was 182. Gen.5.29. Then came the floud in the yeare of *Noah* 600. Gen 7.11. All which do make (being added together) 1656, and not 1657, as they imagine: becauſe that which is ſaid of *Noah* in Gen. chap. 7. verſe 6. *viz.* that he was 600 years old when the floud of waters was upon the earth, is expounded in two ſeverall places after it, that it muſt be underſtood of his 600 yeare current, and not compleat. The places are Gen. 7.11. and Gen. 8.13. the one expreſſing the beginning, the other the ending of the floud: and ſo alſo the moſt and beſt chronologers hitherto have obſerved, although ſome do not.

Which, as it is agreeable to the truth of computation, ſo alſo (that I may anſwer one phancie by another) it is more congruous to the nature of the number of the yeare wherein it came: For *Six* is no number of reſt; witneſſe the ſix dayes of creation, the ſix dayes of our weekly labour, and the ſix ages of the world. But *Seven* is for reſt; witneſſe the ſabbaticall dayes, the ſabbaticall years, and that eternall ſabbath in the heaven of heavens, when the ſix ages of the world ſhall be ended.

Wherefore, in the yeare of the world 1656, the Ark was without reſt, and toſſed upon the waters: but in the yeare 1657 it found reſt; the waters were dried up and gone; and Noah then came out and offered ſacrifice.

And further, admit it be ſaid, that *As it was in the dayes of Noah, ſo ſhall alſo the coming of the Sonne of man be:* Doth this point out any thing concerning the time of his coming? Verily no. It ſhewes indeed the great ſecuritie that ſhall then be in the world amongſt the wicked: ſo that as the floud came upon the old world when they feared nothing; in like manner ſhall the coming of the Sonne of man be. But what is this to the time? Our Saviour doth not compute the time, but compares the manners of the times together; as may be very

plainly ſeen by that which he hath elſewhere publiſhed, ſaying, that *the coming of the Sonne of man ſhall be*, not onely *As it was in the dayes of Noah*, but alſo *As it was in the dayes of Lot*, Luke 17. 28.

For concluſion therefore, ſeeing the floud came before that yeare which they have computed, it may eaſily appear that their *Mundi conflagratio* for the end of the world in the yeare of Chriſt 1657, is but an idle phancie. And as for the time which they referre to the dayes of Noah, we ſee that it is likewiſe referred to the dayes of Lot: the intent onely being to compare the times, and not compute them.

But ſecondly for their *Mundi conflagratio*; admit it were ſo that the floud did not come untill the yeare of the world 1657 (as they would have it) yet why ſhould it be that theſe numerall letters muſt be picked out of two Latine words rather then out of words in ſome other language? In Greek it is Κόσμε συμπλεγμαία, out of which words you may gather 1830 at the leaſt.

Surely in this we may ſay, that as in the making of anagrams upon a name, if one language will not help us, we may then write the name in ſome other tongue rather then want letters for our purpoſe: ſo the ſame libertie (belike) he took who was the firſt authour of this phancie for the worlds ending: wherefore we may well conclude that it is but idle and not worth regarding.

Another (much like to this) is that which others have alſo hatched; whereby in the yeare of Chriſt 1645, ſhould be the end of the world.

Another crotchet, whereby the world ſhould end in the yeare 1645.

Now this they gather out of theſe words, ADVENTVS DOMINI, which ſignifie *The coming of the Lord*; for in them they have ſo many numerall letters as will make 2012: out of which they ſubtract ſo much as they gather out of theſe words, DIES ABBREVIABVNTVR, *The dayes ſhall be ſhortned*; namely 517: and then the remainder

der of 2012 is 1495: unto which they adde ſo many as theſe words will afford, *viz.* PROPTER ELECTOS, which ſignifie *For the elects ſake*; wherein is a number of 150; and ſo the whole ſumme amounteth to 1645, being (as they fondly imagine) the laſt yeare of the world.

But if ſuch or the like phancies could hold, then (queſtionleſſe) the world ſhould have had many endings ſince it firſt began; and muſt either have had a new creation, or elſe no world had been till now. The former opinion confuted.

As for example, either in the yeare 1532, or in the yeare 1533, or in the yeare 1578, or in the yeare 1588, or in the yeare 1623, the judgement day (upon theſe grounds) was foretold to come. For firſt, in the yeare 1532, they had two wayes to prove it; either out of theſe words, VIDEBVNT IN QVEM PVPVGERVNT; or out of theſe words, VIDEBVNT IN QVEM TRANSFIXERVNT; which ſignifie, *They ſhall look on him whom they pierced*; the numerall letters being in either of theſe ſo many as will make 1532. Secondly, for the yeare 1533, they had this falſe proof, binding ſtill upon numerall letters, which they gathered out of theſe words, IESVS NAZARENVS REX IVDÆORVM, *Jeſus of Nazareth king of the Jewes*; here being ſo many as will make 1533. Thirdly, for the yeare 1578, thus it was: *viz.* they take theſe words, ADVENTVS DOMINI, and in them they have 2012; out of which number they ſubtracted 517, which they gathered from DIES ABBREVIABVNTVR; and then the remainder makes 1495: unto which they adde the number of the letters [*a,e,n, t,s,*] in *adventus*, which were not numerall before, yet by their naturall poſition in the alphabet or croſſe-row they give 56: then again by the ſame reaſon they take 27 out of [*o* and *n*] the non-numerall letters in the word *Domini*; both which numbers being added to 1495; do make 1578. Fourthly, for the yeare 1588, the

John 19. 37.

Vide Buchol. chron. anno Dom. 1533.

manner of calculating is as before for the yeare 1645, unto which number having raiſed their ſumme, they ſubtract [*a,e,n,t,s,*] *viz.* 56: and ſo they have 1587 years, which they reckon compleat, and referre their prediction to the beginning of the yeare 1588. *Vide Gerardum in locis communibus, pag.* 185. *Tom.* 9. Fifthly, for the yeare 1623, thus was the phancie, IVDICARE VIVOS & MORTVOS, *To judge the quick & the dead*: Now here (as before) they were led by numerall letters, having ſo many as would make 1623, in which yeare they dreamed of the worlds ending. Now theſe times we know are paſt long ſince, but the event you ſee hath not anſwered to the propheſie. Things therefore of the like nature being yet to come, and built upon the ſame grounds, cannot but prove as falſe.

Vide Dieter. poſt Dom. 2. *adven.*

But what need many words be ſpent about the confutation of ſuch idle dreams and fooliſh phantaſies? Surely, that great and terrible day of the worlds ending, is a thing of greater moment then that it ſhould be thus dallied with. Let not therefore the quinteſſence of wit expoſe us to ſuch impudent folly: For although it may ſomewhat pleaſe us in ſhew; yet, when the beſt is made of it that can be, it will be proved, not onely the doting froth of a wittie brain, but alſo a ſuperſtitious and an heatheniſh vanitie.

I have ſeen a world of phancies more upon this ſubject, eſpecially ſuch as may be taken out of * *Cuſa*, who was made Cardinall under *Pius* the ſecond: But ſeeing they are as idle as the former, and built upon as falſe grounds, I ſcarce hold them worth the anſwering.

* See Treaſ. of ancient and modern times, l. 4. cap. 20. *Napeir on the Revelat. prop. 14 where he determines the time to be betwixt the years 1688, and 1700; naming either the yeare 1697, or 1699.

Yet (having come thus farre) let me go a little further, becauſe in the next place I hope to meet ſome wiſer men; granting (as indeed they ought) that the preciſe day and houre of the worlds ending cannot be known: yet they would not have any to be ſo * baſe of judgement,

as

as to conclude thereby, that an apparent length of this laſt age may not be found; or that ſeemingly between ſuch and ſuch years the judgement day ſhall not be known to come: For is it propheſied; and why are propheſies, if they either may not, or cannot be underſtood? It is recorded in Matth. 24. 15. *Let him that readeth, underſtand.* It is ſaid Dan. 12. 10. *None of the wicked ſhall underſtand, but the wiſe ſhall underſtand.* And Revelation 1. 3. *Bleſſed is he that readeth, and they that heare the words of this propheſie, and keep thoſe things which are written therein: for the time is at hand.* And Dan. 12. 4. it is ſaid, that theſe things toward the end ſhall be unſealed: for *many ſhall runne to and fro, and knowledge ſhall be increaſed.*

Now here I may anſwer, that although ſome underſtand the foreſaid texts to have relation to the times towards the worlds ending, yet there be no *few who contradict it; affirming that what they alledge out of Daniel was accompliſhed about the time of *Antiochus*: and that by *running through* (which ſome reade *running to & fro*) is meant the diligent peruſing of the book: namely, that though at the firſt it were not regarded, yet many in time to come ſhould give their minds unto it: being (as *Polanus* expoundeth) thus to be underſtood, that in the great perſecution under *Antiochus*, many ſhall be found faithfull, who ſhall cleave unto this propheſie: And as for the wicked not underſtanding it, we muſt apply it unto the falſe brethren which ſhould be in thoſe dayes of perſecution, and give way unto *Antiochus* his wicked proceedings; labouring to ſeduce and betray their brethren; and they themſelves living without any care to obſerve the accompliſhment of this propheſie, never comparing the event with the thing propheſied: For (as was foretold Dan. 11. 34.) *many ſhall cleave unto them fainedly*, &c. And for *ſealing it up unto the end*,

* See Jun. Calv. Polan. or Dr. Will. Hexap. on Dan.

is

is meant the not making it too common on the ſudden, becauſe from the time of theſe viſions untill the dayes of *Antiochus* were about 300 years. In which regard it is ſaid concerning that other propheſie of the Revelation, that it muſt not be ſealed up, becauſe the time was at hand, Revelat. 22. 10. Yea ſome part of it was not onely preſently to take effect, but even then in act, chap. 1. verſe 19. And as for that in Matthew, it hath relation unto the deſtruction of Jeruſalem under *Titus* and *Veſpaſian*.

Or ſecondly, be it ſo that I do not altogether condemne this their inquirie, becauſe I verily think that a modeſt and religious ſearch into theſe myſteries may ſee very farre: yet nevertheleſſe, ſeeing interpreters of ſuch myſteries are not (as yet) at one among themſelves, eſpecially in their Synchroniſmes and periods of time; it cannot be denied but that even in them there is much matter of doubt (although they ſtand upon better grounds then *Heſychius* did, whom S. *Auſtine** confuted) ſo that it is hard to ſay when ſuch a time appears indeed to be. And further, were it ſo that we had perfect Synchroniſmes of all things propheſied in the Revelation (for that propheſie doth moſt concern the end) and knew how to link them together; yet if we erred in the true placing of our firſt link, it muſt needs be that the end of our reckoning either fall ſhort, or elſe overſhoot that period, which otherwiſe might point out an apparent time, if not directly of the worlds ending, yet of ſuch propheſies as ſhall be fulfilled before it endeth: (for perhaps that which ſome take to be the apparent time of the worlds ending, may as well be taken for the time wherein other things propheſied ſhall be accompliſhed) but how long the end ſhall be after them, is unknown.

* *Auguſt. Epiſt. 80 ad Heſych.*

In brief, this we find; firſt that the Beaſt mentioned in

in the Revelation ſhould have power of doing for the ſpace of 42 monthes, or of 1260 dayes; which prophetically taken ſtand to * ſignifie ſo many years. And ſecondly, that the ſeventh Trumpet ſhall give an end to all: for when the ſeventh Angel came and ſtood upon the ſea, and upon the earth, he lift up his hand and voice to heaven, ſwearing ſolemnly by him who liveth for ever, ὅτι χρόνος οὐκέτι ἔσται, *Time ſhall be no more.* And ſo likewiſe doth S. Paul bear witneſſe: For, *Behold* (ſaith he) *I ſhew you a Myſterie, we ſhall not all ſleep, but we ſhall all be changed, in a moment, in the twinkling of an eye, at the laſt Trump; For the Trumpet ſhall blow, and the dead ſhall be raiſed.* Whereforæ (ſaith * Pareus) this ſeventh Trumpet ſhall be no other then the Trumpet of the Archangel, by which the dead ſhall be raiſed; as in 1. Theſſ. 4. 6. Which alſo methinks is elſewhere evident, becauſe when S. John ſheweth the events of this ſeventh blaſt, he ſaith, *And the Gentiles were angrie, and thy wrath is come, and the time of the dead that they ſhould be judged,* Revel. 11.18. In which regard it ſeems to me that *Napeir* was not right in allowing as much time to this ſeventh Trumpet, as to any of the former. For though the word ὅτε ſometimes have reſpect to a time, which (as he proveth out of Mar. 4. 32. and John 8. 28.) is not incontinently when; yet here in this place, it hath the beſt & greateſt reference to the immediate blowing of the Trumpet. For thus ſtand the words, ὅτε μέλλε σαλπίζειν, *cùm futurus erit clangere.* So that it is not barely ſpoken that the Myſtery ſhall be finiſhed in the dayes of the voice of the ſeventh Angel: but when he firſt of all ſoundeth, or is about to begin to ſound, Revel. 10.7.

That therefore which for concluſion may be gathered, partly from the premiſes, and partly from ſome other parts of the propheſie depending thereupon is this, that when

* Numb. 14.34. Ezek. 4.5,6. Dan. 9.24. Lev. 25.8.

Revel. 10.6.

1. Cor. 15.51.

* In his Com. on the Apoc.

Napeir on the Rev. Propoſ. 14.

Idem in his notes on the 10 chap. Annot. g.

when the Beaſt mentioned in the Revelation hath exerciſed his power of doing for * 1260 years, it ſhall be in the power of the Potentates and Kings of the earth to pull him down, even at the pouring forth of the fifth Viall: from whence he ſhall be onely able to remain, the moſt of his time, in a languiſhing State, and not be finally deſtroyed till the coming of Chriſt. In which ſpace of time the ſixth Viall is like to be poured upon the Turks, whoſe plague is to be next after that of Rome; by the means whereof there is a way made for the inlargement of Gods Church, by the calling in of the Jews when the time of the fulneſſe of the Gentiles ſhall be accompliſhed. Next after which come the ſeventh Viall & ſeventh Trumpet, when the Myſterie ſhall be quite made manifeſt, and *time be no more*, as the Angel ſpeaketh. And yet notwithſtanding all this, I do well perceive, that it is no eaſie thing to find an apparent length of this laſt age any long while before it endeth, unleſſe we could be directly certified of the utmoſt periods of all the Trumpets; or knew the times of the ſeven Vials, which by ſeven Angels were to be poured out. The beſt and onely way is alwayes to watch, and to be evermore readie either for death or judgement: for certainly when that time comes, pure hearts (as Bernard ſpeaketh) ſhall prevail more then ſubtill words; good conſciences better then full purſes; becauſe the Judge will not be deceived with words, nor moved with gifts: neither is it poſſible that any ſhould avoid him; for all muſt be ſummoned to appear before him. To which purpoſe *Du Bartas* deſcants thus.

Thoſe that were laden with proud marble tombes,
Thoſe that were ſwallow'd down wild monſters wombes,
Thoſe that the Sea hath drown'd, thoſe that the flaſhes
Of ruddie flames have burned all to aſhes,
Awaked all, ſhall riſe, and all reveſt
The fleſh and bones that they at firſt poſſeſt.
"But ſome muſt Juſtice, ſome muſt Mercie taſt;
"Some call'd to Joy, ſome into Torment caſt.

CHAP.

*There be three times which ſeem probable for the end of this reckoning; either in the yeare 1655, or in the yeare 1735, or in the yeare 1866. The firſt whereof is reckoned from the overthrow of the Dragon by Theodoſius; the ſecond, from the decay of the ſixt head of the beaſt in the dayes of Auguſtulus, which wound the Pope cured: and the laſt is reckoned from the dayes of Boniface the third who was made the head of all Churches in the yeare of Chriſt 606, and ſo had power of doing.

CHAP. II.

Shewing in what part of the yeare the World was created.

IN the account of Times it is verie neceſſary that there ſhould be a propoſed point or mark from whence every reckoning may take beginning; that thereby the years which have ſeverall times of beginning, may the more truly, be computed and compared among themſelves. Wherefore it cannot be amiſſe to ſet down ſomething concerning the time of the yeare wherein the world began; eſpecially, ſeeing among Chronologers it is uſuall to referre their accounts either to the current yeare of the worlds Creation, or of our Saviours birth.

And now, concerning this, there be chiefly three opinions.

Sect. 1.

FOr firſt Mercator and ſome others maintain that the world was created in the very time of the Summer Solſtice, and that in the beginning of time, the Sunne entring Leo, gave beginning to the yeare.

This (as is thought) was firſt hatched among the Prieſts of Egypt, who, obſerving the river Nilus to overflow about the Summer Solſtice, adored it for a God, eſteeming the time of its inundation for an infallible beginning of divine actions in things created; and thereupon, for the beginning likewiſe of the yeare at the time of the worlds creation.

But

But if this were the onely cauſe, we may not unfitly ſay, that it was follie and ſuperſtition which firſt ſet this opinion abroach; and therefore he is worthie of blame who will go about to maintain it. And although Mercator in his Chronologie ſeems to alledge ſome other reaſons, thereby to uphold his ſhare in it; yet his chief reaſon is not ſufficient: for it is grounded upon that which is not granted, *viz.* that the Flood ſhould end about July, becauſe in the eleventh moneth, which he ſuppoſeth to be May or June, when the Olive beginneth to put forth; the Dove brought green Olive leaves unto Noah into the Ark.

To which it is anſwered, That the word in Gen. 7. 11. which he taketh to ſignifie *green leaves*, may (as Expoſitours witneſſe) as well be taken for *branches*, even ſuch as have been uſed to make bowers with: which (according to the tranſlation of the Septuagint) is expreſſed by a word ſignifying *a drie ſtalk*. And ſo ſaith a * Doctour in his Hexapla upon Geneſis, chapter the firſt, queſtion the 17. that the word in the Originall is *Gnalce*, which (as S. Hierome tranſlateth it elſewhere) ſignifies *the branches of Olives*: and in the Septuagint it is ῥάβδος, *a ſtalk*, without leaves.

* Dr Willet.

That therefore which the Dove brought, might be ſome branch of the Olive tree rather then the leaves; & ſo might the Flood end at the dead time of the yeare, rather then when things were freſh and flouriſhing.

But admit that the ſtalk or branch had leaves on it, yet it proves not that it was about May or June, when the Dove found and brought it; becauſe it is * recorded of the Olive, that ſhe loſeth not her leaves as other trees do, but is green and flouriſhing all the yeare. Such leaves therefore as it had before the Flood, it might have after the Flood: for if they were new ones, they muſt needs ſpring out in ſeven dayes; becauſe the Dove was ſent

* Plin. l. 16. c. 20.

out

out but ſeven dayes before, returning then as a creature diſconſolate, not finding any thing at all.

Sect. 2.

ANother opinion is, that it was created in Autumne, and that the Sunne (who is the Index of time, by whoſe revolution we account our years) began his courſe in Libra about the 26 day of October, if the reckoning be reduced to our Julian yeare which is now in uſe.

Unto which opinion I gave my aſſent, when I firſt wrote of theſe things, and had for it (as I then thought) many ſtrong and forcible reaſons, which I did illuſtrate and lay open at large, building much upon the teſtimonie of Joſephus, whom Calviſius and others ſtrengthen from the words of the Chaldee Paraphraſt, upon the firſt book of the Kings, the VIII chapter, at the ſecond verſe: But was moſt of all drawn to be of their ſide, by joyning with them in their underſtanding of thoſe texts of Moſes in Exodus, chap. 23. verſe 16. and chapter the 34, verſe the 22. where firſt the Iſraelites are commanded to obſerve *feſtum collectionis in exitu anni, quum collegiſſent labores ſuos ex agro; hoc eſt, feſtum tabernaculorum menſe ſeptimo*: and ſecondly are taught, that this feaſt was *in revolutione anni, ſive revolvendo anno*; by which a man would think that the yeare both ended and began again, about the feaſt of Tabernacles: and, that though the firſt moneth of the yeare mentioned, and ſo commanded to be called, in Exodus the 12, at the coming out of Egypt, was reckoned from the Spring; yet the yeare naturally did nevertheleſſe begin from Autumne, in the ſeventh moneth from that firſt.

Sect. 3.

Sect. 3.

HOwbeit upon more mature deliberation I think them to be in the right, who reckon from the Spring: & do therefore fairly lay down my former tenet.

For first, that moneth which began from thence is (in the 12. chap. of Exodus) expressely called the *First moneth of the yeare*, as cannot be denied: The first moneth, not as then appointed, but confirmed, for any thing that the text affirmeth to the contrarie. For seeing the Originall doth not say directly, Let it be the first moneth; it is every whit as right to understand the verb which is wanting to be as well a verb of the Indicative, as of the Imperative mood, and of the present, as well as of the future tense. Whereupon it will also follow, that Moses (by Gods appointment) ordayning this moneth to be the first moneth of the yeare doth make no new institution, but reneweth the old account of the Patriarchs, which was discontinued in Egypt by reason that the Egyptians indeed began their account from their moneth Ptho, in Autumne, when Nilus returned again into his river, as well as from that time which Mercator taketh up, when it first began to overflow. And indeed this word *to you* calls them back from the custome of Egypt: For that manner of reckoning which they had seen there, was none of theirs: And therefore they being come from thence, must know that it belongs to them to reckon thus, *for* TO YOU *this is the beginning of moneths*, Exod. 12. 2.

Josephus therefore had small cause to say, that Moses altered the old ancient order of the yeare, especially, seeing he himself doth likewise (in a manner) affirm, how that the Hebrews reckoning from Autumne, do but as the Egyptians did. Besides, Josephus having an eye to the beginning of the years of Jubilee, which began from

from the ſeventh moneth after that moneth which Moſes told them was the firſt moneth of the yeare, was the readier to think (as the modern Jews ſince his time have alſo donne) that in regard of Eccleſiaſticall affairs the beginning of the yeare was altered at the coming out of Egypt ; but the old ancient beginning ſtood ſtill and was regarded in their affairs of civill nature : whereupon he ſaith that Moſes did innovate nothing from the ancient rite concerning the diſpoſing of the yeare for buyings and ſellings. In which words (methinks) he doth a little ſtumble both himſelf and ſuch as ſtick to his teſtimonie, in regard that the nundinations and things of that nature appertained to the Jubilee, which was not inſtituted untill afterwards. I find therefore little in Joſephus concerning this to build upon.

The Chaldee Paraphraſt alſo is in this the ſame in effect with Joſephus, and is ſo much the more invalid, by how much the reckoning of the Chaldeans and Perſians is againſt it : both of which Nations accounted from the Spring, and might firſt learn it from the Patriarchs (Terah and Abram) who we are ſure lived for a great while together in Ur of the Chaldees, and taught them (at leaſt Abram did) the knowledge of the ſtarres : for ſo Beroſus mentions. And ſucceſſively ever ſince, Aſtrologers have accounted the revolutions of the world from the Sunnes entrance into Aries ; where (in token of the beginning of the yeare) the Perſians ſet their God Mithras, holding in his hand a naked ſword.

Saint Ambroſe ſaith, to ſhew that it was Spring when the world was made, the Scripture ſpeaketh thus, *Hic vobis initium menſium*, This is to you the beginning of moneths. Nor do other of the Fathers (Euſebius, Baſil, Athanaſius, Cyrill of Jeruſalem, Auguſtine, Gregorie, Nazianzene, Damaſcene, Beda, Iſiodore) beſides late writers (Luther, Johannes Lucidus, Bunting, Lydiat,

diat, Polanus, Perkins, Willet, Alſtedius and others) but affirm as much. Beda makes mention of a Synod holden in Paleſtine by Theophilus Biſhop of Ceſarea, in which was agreed that the world was made in the Spring: Yea, and among the Jews, Rabbi Joſhua doth earneſtly defend the ſame tenet againſt another great Rabbi, who would that it ſhould be made in Autumne.

And further, whereas God bleſſed the creatures, and bid them increaſe and multiplie, which bleſſing preſently took effect; who knoweth not that for moſt kinds of creatures, eſpecially the fiſh and fowl, the fitteſt time to engender and increaſe is the Spring.

The time of the creation is alſo found from the hiſtorie of the Flood, which began on the 17 day of the ſecond moneth of the yeare: which ſecond moneth agrees not to Autumne, but to the Spring: For firſt by comparing the order of moneths here ſpecified, with that order which God gave Moſes command to put in practice, it will well appear that the firſt moneth was reckoned from the Spring; becauſe it cannot be ſhewed in any place of Scripture, when the moneths are reckoned in their orders (as the firſt, ſecond, third, fourth, fifth, &c.) that they take beginning from any other time. So that as Moſes accounted the firſt, ſecond, third, fourth, fifth, &c. from Niſan, which began in the Spring; in like manner did Noah reckon from the ſame time.

And whereas I heretofore thought that this order of the moneths could prove nothing, becauſe not above 4 of the moneths were known to have names till after the captivitie; and muſt therefore either not be reckoned at all, or elſe be reckoned in order according to their number, from whence ſoever the reckoning be begun: I find it ſince to be no perfect anſwer. For even thoſe foure are mentioned as well by the order of their number, as by their name, even before the captivitie, when they

they had names to be called by, 1. King. chap. 6. and chap. 8. Nor was it but ſo likewiſe, afterwards, both with them and ſome of the reſt, as in Joſephus, and the books of Macchabees may be ſeen. 1 Mac. 4. 52. & chap. 9. 54.

And then ſecondly, if it had been Autumne when the Flood began, the Flood continuing much about a juſt and even yeare, it muſt needs end at ſuch a time as a man would think ſhould be neither fit for the creatures to encreaſe and multiplie, nor for the earth (in thoſe Northern parts of the world where the Ark reſted) to be dried up, no nor for the graſſe and herbs to grow for food, the winter coming on ſo ſoon. Saint Ambroſe therefore is ſo fully reſolved concerning this, that *It is not to be doubted* (ſaith he) *but that this ſecond moneth was in the Spring time, when things increaſe and grow, the fields bring forth, &c. and that God then ſent the Flood upon the wicked, when their grief ſhould be the greater to be puniſhed in their abundance.* Which ſaying of that holy Father ſeems to be warranted from the words of our Saviour, Math. 24. 37. For it is true according to Chriſts own teſtimonie, recorded there, that they of the old world were taken away even in the midſt of all their mirth.

And as for the foreſaid Texts alledged out of Exodus, they may be anſwered thus, *viz.* that the yeare as well as the moneth is naturally divided into two chief parts: the one whereof is of the yeare beginning or coming in; the other, of the yeare ending or going out. For by this the yeare ſeems to be compared to a Ring, which by a diameter is divided into two ſemicircles, inſomuch that when one half is ended by the courſe of the Sunne from one point of the diameter to the other; the other part muſt needs be taken for the converſion or return untill the Sunne be come again to the firſt point, where, as one yeare endeth, the other beginneth. Now then the

ſeventh moneth is fitly called the converſion or return; becauſe the firſt half is then at an end, & the yeare entred upon his revolution or return: and ſo the Feaſt of Tabernacles (kept alwayes in that moneth) was *in exitu anni*, in the going out of the yeare, as without further ſcruple may be freely granted.

And furthermore, whereas it is uſually objected that the trees were created with ripe fruits on them, and that the world was therefore made in Autumne: it is anſwered, that in the Eaſtern parts of the world ſome fruits are ripe in the Spring as well as in Autumne, as is ſeen by the Harveſt of the Jews, which was never long after Eaſter. And without queſtion Paradiſe had the preheminence to be in the beſt place that the world afforded, and might therefore have ripe fruits ſooner then the Jews had their yearly Harveſt.

I conclude therefore, that the Sunne began his courſe in Aries, about the twentieth day of April, according as we now reckon the moneths and dayes of our Julian yeare: For by Aſtronomicall calculation that's found to be the fourth day of the firſt week, and firſt day alſo of the vernall Equinox, when the years from the Creation be rightly reckoned: ſo that the 17 of April ſeems to me to be the firſt day of the worlds Creation, 3948 years before the beginning of the common Æra of Chriſts birth.

Here follows the HEXAMERON, OR Discourse of the causes, continuance, and qualities of things in Nature, occasioned as matter pertinent to the work done in the six Dayes of the Worlds Creation.

The second Edition.

EXOD. 20. 11.

In six dayes the Lord made heaven and earth, the sea and all that in them is, and rested the seventh day.

Printed at *CAMBRIDGE*,
By ROGER DANIEL Printer to the famous Universitie. 1642.

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Here follows the HEXAMERON, OR Diſcourſe of the cauſes, continuance, and qualities of things in Nature, occaſioned as matter pertinent to the work done in the ſix Dayes of the Worlds Creation.

The ſecond Edition.

EXOD. 20. 11.

In ſix dayes the Lord made heaven and earth, the ſea and all that in them is, and reſted the ſeventh day.

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CHAP. III.

Containing a diſcourſe of ſuch things as are pertinent to the firſt dayes work.

Sect. 1.

Of God the Architect of all, and of the firſt part of the firſt dayes work.

Time, by whoſe revolutions we meaſure houres, dayes, weeks, moneths and years, is nothing elſe but (as it were) a certain ſpace borrowed or ſet apart from *eternitie*; which ſhall at the laſt return to eternitie again: like the rivers, which have their firſt courſe from the ſeas; and by running on, there they arrive, and have their laſt: for before **Time* began, there was *Eternitie*, namely GOD; which was, which is, and which ſhall be for ever: without beginning or end, and yet the beginning and end of all things. *Æternitas enim, Dei ſolummodo natura ſubſtantialiter ineſt*, ſaith one: that is, *Eternitie is ſubſtantially onely in the nature of God.* When Moſes therefore would have known Gods name, he tells him, *Thus ſhalt thou ſay unto the children of Iſrael,* *IAM *hath ſent me unto you: By which name*, ſaith Junius, *he would have himſelf known according to his eternall eſſence, whereby he is diſcerned from all other things which are either in heaven, on the earth, or elſewhere.* Which in another place is thus illuſtrated; *Ego ſum Primus & Ultimus, & præter*

* *Deus dum cœlum exornaret, fecit æternitatis quandam in numero fluentem imaginem, quam nos Tempus vocamus*, Goclen. ex Plat.

Exod. 3. 14.

* *Hoc nomine ſe cognoſcendum proponit ab æterna eſſentia ſua, quâ ab omnibus quæ ſunt in cœlo, terra, & infra terram, diſcernitur*, Junius, annot. in Exod.

ter me non eſt Deus; I am the Firſt & the Laſt, & beſide me there is no God, Eſay 44. 6. Or thus, *Before the day was, I am he; and there is none that can deliver out of my hand*, Eſay 43. 13. To which that of the Pſalmiſt doth well agree, *Before the mountains were brought forth, or ever the earth and the world were made, thou art God from everlaſting to everlaſting*, Pſal. 90. 2.

Thus we ſee, that before ever any thing was, God onely was, who * gave both a beginning and a being unto every thing that is: and he, in reſpect of his divine eſſence, is but one. Yet ſo, as in that ſingle eſſence of his there be three divine ſubſiſtences, or perſons all truly ſubſiſting; whereof every one is diſtinct from other, and yet each hath the whole Godhead in it ſelf: and theſe are, the *Father*, *Sonne*, and *holy Ghoſt*, 1. John, 5. 7.

* When we beholdthe admired fabrick of the world, &c. we can no more aſcribe it to chance, then a Printers caſe of letters could by chance fall into the right compoſition of any ſuch book as he printeth.

1. The Father is a perſon who from all eternitie hath begotten the Sonne.

2. The Sonne is a perſon from all eternitie begotten of the Father.

3. The holy Ghoſt is a perſon eternally proceeding from the Father and the Sonne, * as the holy Scriptures witneſſe.

* Pſal. 2. 7. John 15. 26.

** Theſe thus diſtinct in perſon, not divinitie,*
All three in one make one eternall Trinitie.

* *Du Bart.* 1. day of the 1. week.

From which eternall and undivided Trinitie, the whole world, conſiſting of things viſible and * inviſible, took beginning, as the originall words, *Elohim* and *Bara*, do well expreſſe. For *Elohim* being a word plurall doth ſignifie *Dii*, *Gods*: but being joyned with a word ſingular, namely *Bara*, which is *Created*, they then together ſhew that there are three perſons in the Deitie, and that the three perſons are but one God, who did create. Or thus;

* Coloſſ. 1. 16.

* Dr. Willet on Gen. pag. 20.

* Thoſe two words, being the one of the ſingular, the other of the plurall number, do note unto us the ſingularitie of the Godhead, and pluralitie of the perſons. And

not

not onely ſo, but they alſo ſhew that the three perſons being but one God, did * all of them create: For ſuch is found to be the proprietie of the Hebrew phraſe, *Elohim bara,* * *Creavit Dii, The Gods created.*

* Gib. on Gen. Queſt. 1.

* Freig. Hiſtor. Moſaic. pag. 5.

1. Of the Father it is witneſſed, that he created as the fountain of goodneſſe. For ſaith S. James, *Every good and perfect gift is from above, & cometh down from the Father of lights,* Jam. 1. 17. *Of whom and through whom,* ſaith S. Paul, *are all things,* Rom. 11. 36.

2. Of the Sonne it is witneſſed, that he created as the wiſdome of the Father. For, *when he created the heavens,* ſaith Wiſdome, *I was there,* Prov. 8. 27. And again, *By him were all things created that are,* Coloſſ. 1. 14, 15. namely by him who did bear the image of the Father, and was the Redeemer of the world.

3. And laſtly of the holy Ghoſt it is witneſſed, that he createth as the power of the Father and the Sonne. For *by his Spirit he garniſhed the heavens, and by his hand he hath formed the crooked ſerpent,* Job 26. 13. & chap. 33. 4. Or, as the Pſalmiſt hath it, *By the word of the Lord were the heavens made and all the hoſts of them [ſpiritu oris] by the ſpirit of his mouth,* Pſal. 33. 6.

All which conſidered, and found to be done in the beginning, muſt needs be then when there was no pre-exiſtent matter to work upon. For (* as it is witneſſed) the Hebrew word *Reſhith,* which is Engliſhed *the beginning,* doth not ſignifie any ſubſtance; neither doth the other word *Bara, to create,* ſignifie any way to create but of nothing: and thereby it is diſtinguiſhed from the word *Jatzar, to form,* & *Guaſha, to make.* And therefore though now we behold a glorious ſomething wherein appears in every part more then much matter of wonder; yet at the firſt, ſaith noble *Bartas,*

* Gib. on Gen. Queſt. 1.

Nothing but nothing had the Lord Almightie,
Whereof, wherewith, whereby to build this citie.

That

That Axiome therefore in philosophie, *Ex nihilo nihil fit*, must needs stand aloof off when we speak of creation. For although it be * true that according to the course of nature and ordinary custome of things, nothing can be made, unlesse out of some former matter: yet when we descend *ad inquirendam primarũ rerum conditionem*, to enquire after the first condition of the first things, then we shall find that God is above nature, because he is the Lord of nature. And he, whose sufficiencie and efficiencie is altogether absolute, must needs be able *supernaturali quâdam ratione*, by a certain supernaturall means, to produce all things out of nothing.

* *Esse ex nihilo nihil fit per mutum seu transmutationem, id est, generatur; tamen ex nihilo aliquid fit per simplicem emanationem, id est, creatur. Goclen. disp. Phys.*

Of which nothing that I may say something, my best and onely way is to look at Moses, and (as near as I can) explain his meaning.

In the beginning (saith he) *God created the heavens and the earth.* In which words he laboureth not so much to deliver a generall proposition of the works of creation, or of the two distinct parts of the world, or of the matter of heaven and earth, as if the one word did insinuate all the superiour parts of the world, the other all the inferiour parts beside: or as if taking both together, he meant by them joyntly *totius mundi semen, the seed of the whole world*, mentioning it under these two words of *Heaven* and *Earth*, as a Chaos. This he meaneth not; because that which concerns the Chaos is mentioned afterwards in the second verse. And what were it but a plain tautologie, to say that in the beginning God created a Chaos, and that Chaos was a Chaos? Wherefore in those first words he intendeth nothing more then to shew that the world which now is called, according to its parts, Heaven and Earth, was not from everlasting, but took beginning: and so without controversie the right reading of his words doth also witnesse. For in their originall (as it is witnessed by Expositours) thus they sound,

In

In the beginning God created theſe heavens and this earth: as if it ſhould be ſaid, Theſe very heavens and this very earth, which now we ſee in being, were not alwayes, but began. Then afterwards he proceedeth to ſhew how, and in what time God created them: ſpeaking firſt how all was like a diſordered and deformed Chaos, the earth and the heavens not diſtinguiſhed, but lying as it were in a confuſed heap all togeather. And this is manifeſt. For on the ſecond day, when the heavens were made, it ſeemeth that their matter was from amongſt that maſſe or unfaſhioned lump which was ſaid to be void and without form, and not able to be kept togeather, had not the Spirit of God cheriſhed it, (for the Spirit of God moving upon the waters, did as it were ſit upon it and nouriſh it, as a fowl doth her egges, with heat and life) yea their matter, I ſay, was from among the waters, which by the power of Gods word were extended and ſtretched like a canopie round about the earth, as now we ſee them. In which regard S. Auſtine's words are alſo pertinent, ſaying concerning this All of which we now ſpeak, * *Materies adhuc erat corporearum rerũ informis, ſine ordine, ſine luce; It was yet an informed matter of corporall things, without order, without light.* Or, as that * Nightingale of France hath ſung it,

This was not then the world: 'twas but the matter,
The nurſerie whence it ſhould iſſue after;
Or rather th' Embryon *that within a week*
Was to be born: for that huge lump was like
The ſhapeleſſe burden in the mothers wombe,
Which doth in time into good faſhion come.

Thus and in this manner I cannot but think of theſe things, not doubting that Moſes in his deſcription of the ſenſible world meaneth otherwiſe; but ſheweth that that heaven and earth, which now we ſee, were in the beginning or firſt degree of being, an earth, or as an earth,

* *Confeſſ. lib. 12. cap. 21.*

* Du Bart. firſt day of the firſt week.

earth, or one lump, without form, and void; a darkened depth and waters; a matter of no matter, and a form without form, as one ſpeaketh; a rude and indigeſted Chaos or confuſion of matters, rather to be believed then comprehended of us. *And this,* ſaith he *is the ſecond naturall beginning. For, after the expreſſing of the matter, followeth that which Philoſophers call a ſecond naturall principle, Privation, the want of that form of which this matter was capable; which is accidentally a naturall principle, required in regard of generatiõ, not of conſtitution, here deſcribed by that part next us, earth, which was without form, as is ſaid, and void. This was the internall conſtitution. The externall was darkneſſe upon the face of the deep. Which deep compriſeth both the earth before mentioned, and the viſible heavens alſo, called a depth, as to our capacitie infinite, and pliant to the Almighty hand of the Creatour: called alſo waters, not becauſe it was perfect waters, which was yet confuſed; but becauſe of a certain reſemblance, not onely in the uniformitie thereof, but alſo of that want of ſtabilitie whereby it could not abide together, but as the Spirit of God moved upon theſe waters to ſuſtain them,* &c. Here therefore is the third beginning or principle in nature, that form which the ſaid * Spirit by that action framed it unto.

* Mr. Purch. in his firſt part, lib. 1. cap. 2.

* Not the aire or winde; they were not yet.

The Hebrews * call the whole maſſe, as it is comprehended under the names of Heaven and Earth, *Tohu Vabohu: Tohu, without order; bohu, without varietie.* But it was not long that it continued in this imperfect ſtate: for in one week it was (as I may ſay) both begotten & born, and brought from a confuſed Chaos, to a well-ordered and variouſly adorned Univerſe. Or, as one ſaith,

* Gibbens on Gen. queſt. 2. anpot. d.

Materiam Deus ipſe creat, comitque creatam.

Whoſe meaning may be taken thus,

The matter firſt God out of nothing drew,
And then addes beautie to that matter new. Which

Which was, not becauſe he was unable to make all the world perfect in an inſtant; but becauſe he would not. Whereupon an holy * Father ſaid, *Voluntas Dei eſt cauſa cœli & terræ; & ideo major eſt voluntas Dei quàm cœlum & terra: The will of God is the cauſe of heaven and earth, and therefore it is greater then either of them.* * Auguſt.

God therefore doth not diſable his omnipotence in not working all at once, but ſheweth that he worketh all things * *according to the counſell of his will*; which in this work of creation (proſecuted both by an order of time and degrees) is ſo farre from eclipſing his power, that it rather doth demonſtrate both his power and wiſdome to be infinite: and that *he hath ſo done his marvellous works, that they ought alwayes to be had in remembrance*, Pſal. 111. 4. For in wiſdome he hath made them all: And why not all at once, was becauſe the counſell of of his will was otherwiſe. * Epheſ. 1. 11.

But may we not yet enquire a further reaſon why it pleaſed the Almighty thus to will ſuch a ſpace, and would not rather produce this All perfect at once? *Queſt.*

This perhaps may be thought a queſtion too curious to be determined, becauſe Gods will is a ſufficient reaſon in all his actions; and therefore it is better left then looked into. Which ſurely might well be ſo, if the reaſons urged prove too eagle-eyed and unprofitable, not bettering us in our dulneſſe or want of knowledge. But otherwiſe, if they inſtruct man in any thing pertinent to his preſent condition, and inform him ſo as he may be ſomewhat reformed by them: then they may be urged without the brand of niceneſſe or imputation of curioſitie. *Anſw.*

Firſt therefore we may joyn with them, who ſay that perhaps it pleaſed Gods infinite perfection to take this leiſure; becauſe if the creatures had been made all at once, they

they might be thought to be increate, and not made at all; nor yet to have the like ſenſe of their infirmitie as now they have, one ſeeing another made before them.

Secondly, ſeeing the world was thus perfected by degrees before man was, who (being made) was the chief inhabitant of it: methinks ſo orderly to raiſe ſuch a ſumptuous palace for mankind, whileſt yet mankind was not, what was it, but the declaration of a greater kindneſſe, and a demonſtration proving how kind, how carefull, and how gracious God would be to us ever after being made? and therefore now we muſt not diſtruſt him, but *in all our wayes acknowledge him, and he ſhall direct our paths*, Prov. 3. 5, 6. For ſo he hath promiſed, and ſo he doth perform to all that love and fear him; cauſing every thing to work together for their good; nay, for their beſt, as the Apoſtle ſpeaketh. Or, as the Pſalmiſt hath it, *No good thing ſhall he withhold from them who live a godly life*, Pſal. 84. 12.

Thirdly, by this example mankind may reade a lecture againſt himſelf, if heedleſly or haſtily he behave himſelf in any work, and ſhall not rather proceed ſoberly and by degrees, making haſte (as it is ſaid) by leiſure. For true it is, that with us a ſoft pace goes farre: Which made one * fix this contemplation upon the works of creation, ſaying, *How ſhould we deliberate in our actions which are ſo ſubject to imperfection; ſeeing it pleaſed Gods infinite perfection (not out of need) to take leiſure!* Upon thought of which, let us

* Biſh. Hall. *contemp. lib. 1.*

Make ſober ſpeed: for 'tis obſerv'd by proof,
That what is well done is done ſoon enough.
Feſtina lentè: Nam ſat citò, ſi ſat bene.

Thus having (as it were) conſidered the firſt part of the firſt dayes work, we may now come more nearly to that which is the beauty of it, I mean the Light, which ſome

ſome call Gods eldeſt daughter, or the firſt diſtinguiſhed creature, wherewith the Lord * decked the world as with a garment.

* Pſal. 104. 2.

Sect. 2.

The creation of the light.

AND now concerning this bright creature, no ſooner did God ſay, Let it be, but lo it was. He *commanded that it ſhould ſhine out of darkneſſe, as ſpeaks the Apoſtle; and that being ſeparated and ſet apart from * the darkneſſe, the firſt of dayes might be, and Gods good works appear, beginning with the Lights proceeding to ſhew forth his exceeding glory.

* 2. Cor. 4. 6.

*Ex tenebris, ait, eum eduxiſſe lucem, non ut ex materia (nihil enim tenebræ fuerunt, niſi negatio lucis) ſed ut è contrario termino, Pare. in Gen. pag. 146.

But of this reſplendent creature (without which the beauty of the reſt could not be ſeen) there are no few opinions.

1. Some would have it a ſpirituall Light; and ſo under it they comprehend the creation of Angels. But ſurely in my judgement their opinion is the founder who make it a naturall and materiall Light onely, ſuch as now is in the Sunne, the Index of time, and the worlds bright eye. For as the office of the Sunnes light is now to diſtinguiſh between the Day and the Night; ſo was the office of this Light being commanded to ſhine out of *darkneſſe before the Sunne was made: which being made, was the ſubject ever after to retain it. If it were otherwiſe, or any other light, where is it now? ſhall we ſay that it is either extinguiſhed or applied to ſome other uſe? ſurely I think not; becauſe God (who made all by the power of his word) needed no inſtrument or help in the work of his creation: And therefore that Light which at the firſt made his works appear, is no ſpirituall Light; but ſuch and the ſame that now is in the Sunne. And yet perhaps, as* *Aquinas* thinketh, it was but *Lumen informe, quod quarto die formatum eſt; An informed light, which on the fourth day had its perfect form.* And

*Which was the locall, but not materiall originall of it, as ſaith Pareus, *ibid.*

* *Aquin. Sum.* 1. par. Queſt. 70. artic. 1.

Of Angels, and when they were created.

And as for the creation of Angels, it is not like that they were made this first day but on the fourth day: For it is very probable that there was the like order observed in making of the invisible world, which was in the visible; and that on the second day, not onely the visible, but also the invisible heavens were created; yet so as both of them remained as it were unpolished or unfinished untill the fourth day: For then as the outward heavens were garnished with Starres, so might the inward and highest heavens be beautified with Angels. This methinks is not obscurely pointed at in Job, chap. 38. vers. 7. *Where wert thou,* saith the Lord to Job, *when the starres praised me* (or *sang together*) *and all the sonnes of men shouted for joy?* it being here* evident that when the Starres were made, the Angels also had then their being, and rejoyced before God; which was but upon the fourth day of the creation. All this, I say, might well be thus although Moses doth not directly mention it; which was because he applyed himself to the simple capacitie of the people, describing the creation onely of sensible things, being that which at the first he intended, and did in plain tearms testifie in the beginning of his historie, when he said, *These Heavens, and this Earth,* of which I spoke before.

* See Dr. Willet on Gen. chap. 1. Quest. 33.

And further, were the creation of Angels comprehended under the creation of the heavens and light, what were this but to leave the literall sense (which is to be followed in the historie of the creation) and to cleave unto Allegories?

But secondly, concerning this Light, others think that the element of fire was signified by it, whose effect is light, and whose act and qualitie is to enlighten: which made one therefore say, that *The uncreated Light* (viz. God) *commanded this elementarie light to be, that so the thinner and higher element severed from the aire, might*

by

by his enlightning operation effect a light ſome ſhining, ---& the aire, according to the nature thereof, receive it: which to the fire was an eſſentiall propertie, ---to the aire an accidentall qualitie, approved of God, as good both to himſelf & the future creatures. Thus ſome. But others except againſt it, affirming that this light was moveable, by the preſence of it making day, and by its abſence making night: which could not have been, had it been the element of fire; unleſſe it be more or leſſe in one place then in another, and not equally diſperſed. Or, as *Pareus* anſwereth, it could not be the element of fire, becauſe that is above the clouds (according to the common rules of Philoſophie) and therefore in his judgement the fierie element was not untill the ſecond day, being created with the *Expanſum* or ſtretching out of the aire.

But unto theſe exceptions I think an anſwer may be framed, as I perhaps ſhall afterwards ſhew you.

Thirdly, if (as ſome have done) we ſhould think that this was the very light of the ſunne, and then in the ſunne, or in ſuch a cloud or ſubject as was the matter of the ſunne, the text would be objected againſt it; which affirmeth that the ſunne was not untill the fourth day: for the creation of that was but then, although the light was before.

Fourthly, *Aquinas* ſaith,* *Lux primo die fuit producta ſecundùm communem lucis naturam: quarto autem die attributa eſt lũinaribus determinata virtus ad determinatos effectus: ſecundùm quod videmus alios effectus habere radium ſolis, & alios radium lunæ, & ſic de aliis.* Whereupon he concludeth, that howſoever it was, it was but an informed light untill the fourth day.

* *Aquin. Sum. part. 1. quæſt. 70. art. 1.*

Now therefore, amongſt a multitude of opinions which are beſides theſe already mentioned, I (for mine own part) cannot but preferre this as the beſt; namely, that the light for three dayes ſpace wanted a ſubject,

such as now it hath: and yet it did perform the same office which now it doth being fastened to a subject, or to the bodie of the Sunne, which is *Vehiculum lucis, A Charriot for the light.* For we may easily perceive that in the works of creation there is such an * harmonious order observed, as that there may be an union and reduction of all things of one kind to their own heads and centre.

* God made one proper centre for all things of one kind, unto which he reduceth them.

As for example, the upper waters must be severed by the out-spread firmament; and the lower must repair all to one sea. as their naturall subject: and as for heavy substances, they hasten downwards; and the light ones, they fly upwards. In like manner, that light which at the first was dispersed and fixed to no subject, doth presently (as soon as the sun was) unite it self unto that bodie, as now it is.

This of all other seemeth to me the best opinion to pitch upon, and the most probable in this kind: which may well be as an Embleme how God will one day gather his elect from all coasts of heaven to the participation of one glorie. S. Paul applieth it to our regeneration, thus; * *God, who commanded the light to shine out of darknesse, hath shined in our hearts*, &c. that *we, who were once darknes, are now light in the Lord.* And in this consideration I think we need not much dissent from them who would have the element of fire signified by it; which opinion was before mentioned: for howsoever it be that that element be now dispersed, or whersoever placed, yet it might be that the first light shined from it; thus I say it might be, because we may not reason * *a facto ad fieri*, or from the order of the constitution of things in which they now are, to the principles of their institution whilest yet they were in making. And for further proof of this, I do easily assent to them * who have probably affirmed that the starres and lights of heaven contain the

* 2. Cor. 4. 6. & Ephe. 5. 8.

* *Purch. lib. 1. cap. 2.*

* *Lyd. Praelect. Astron. cap. 4.*

the greateſt part of this fire; as afterwards in the fourth dayes work ſhall be more plainly ſhewed.

In the mean time this I adde, That the Light now made was that very thing which God himſelf called DAY. *For he called the Light* DAY, *and the Darkneſſe he called* NIGHT, Gen. 1. 5. By which it appeareth that this firſt Light was made in motion, and was created in the Eaſtern part of that Hemiſphere in which Man was made. For unleſſe it were moveable, how could it meaſure any ſpace of time, or by an alternate courſe diſtinguiſh the Day from Night? Or if created in the middle or other then the Eaſtern part of Heaven, the firſt had not been *Dies unus, ſed dimidius ſeu mutilus*, not one Day, but the half of a Day, or a Day in part, maimed and incomplete. And becauſe the Evening is firſt mentioned, as the term of the artificiall Day; and then the Morning, which is the term of the Night and beginning of the next Day: thus much is further ſhewed, That the naturall Day is from Morning to Morning, as * Chryſoſtome noteth; and the artificiall, from Morning to Evening, when the light abſents her ſelf and diſappeareth.

* *Homil. 3. and Homil. 5. in Geneſ. So alſo Ambroſe.*

This is the beauty of all the beauties elſe: for even all the beautie of the world had been as nothing if ſo be this bright ſhining creature had never been.

Gods eldeſt daughter, Oh how thou art full
Of grace and goodneſſe! Oh how beautifull. Du Bart.

Queſt. But if God made the Light, was he not before in darkneſſe? *Anſw.* No: for he needs not any created light, who is himſelf a Light uncreated; no corporall light, who is a ſpirituall one. *God is light and in him is no darkneſſe at all*, 1. John 1. 5. He made this Light for our mortall journey on earth; himſelf is the Light of our immortall abode in heaven: neither did he more dwell in this Light that he made, then the waters were the habitation of the Spirit, when it was ſaid that *the Spirit moved upon the waters.*

But see, there was Night, Light and Day before the Sunne; yet now without it there is neither: which sheweth that we must allow God to be the Lord of his own works, and not limit his power to means.

And surely as it was before man was made, so shall it be after he is dissolved: For then, as the* Prophet speaketh, *The Sunne shall no more be thy light by day, neither shall the Moon give light unto thee: but the Lord shall be unto thee an everlasting light, and thy God thy glory.*

* Esay 60. 19.

Lastly, unto this amongst many things let me adde but one thing more. God made light on the first day; so Christ arose from death on the same day, being the first of the week: And he *is the true light which lighteth every one that cometh into the world*: Of which light if we have no portion, then of all creatures man is the most miserable.

Sect. 3.

Of the intercourse between day and night.

WHat now remaineth? God called the light Day, and the darkenesse Night: 'Tis true,

Th' Alls Architect alternately decreed,
That Night the Day, the Day should Night succeed.

Of both which we have more then manifold use and benefit. The night easeth the burden of the day; the day driveth away the terrour of the night. The night burieth our cares, & doeth what she can to drown all our griefs in a silent sleep: the day serveth for our needfull labours; is the wicked mans just terrour, the mother of truth and true beauties onely glasse, wherein she may both see her self, and be also seen. The night serveth to temper the dayes exceeding drought, and to cool its heat; for by moistning the aire it makes the earth to fructifie: the day again warmeth the coolnesse of the night, melting the white hoarie haires of winters beard; and with a reviving, cherishing, and nourishing of things, as well sensible

ſible as vegetative, addes life afreſh into the dying Univerſe; ſerving (as I ſaid before) for the needfull labours of man : For, as the Pſalmiſt hath it, *The ſunne ariſeth, & then man goeth forth unto his work, & to his labour untill the evening*, Pſal. 104. 22. And ſo alſo for the night, it is deſtinated or appointed for quiet and ſleep, wherein the wearied bodies of living creatures are refreſhed, and their ſtrengths repaired : the noiſome beaſts now come forth and feed, leſt coming in the day they might be a terrour unto men : For, as the Pſalmiſt again recordeth, *Thou makeſt darkneſſe that it may be night, wherein all the beaſts of the forreſt do move* ; as the lions roaring after their prey, and the like, verſ. 20.

But of this enough. And now laſt of all when this dayes work was done or brought to an end, God is ſaid to view it, and behold there was nothing amiſſe ; That is, Moſes, ſpeaking according to our capacities, telleth us that God doth approve and ratifie that work now done, which before he purpoſed to make.

So Eve and Morn conclude the firſt of dayes,
And God gives to his work deſerved praiſe.

CHAP. IIII.

Of the ſecond day; and of ſuch things as are pertinent to the work done in it.

Sect. 1.

Of the Expanſum, *or ſtretching out of the Heavens.*

COncerning this dayes work what it was, we find it thus expreſſed, *And God ſaid, Let there be a firmament in the midſt of the waters; & let it divide the waters from the waters. And God made the firmament; and divided the waters which were under the firmament, from the waters which were above the firmament: and it was ſo. And God called the firmament Heaven: and the evening and the morning were the ſecond day*, Gen. 1. 6, 7, 8.

This is the narration of what was done. And here let us conſider, firſt of the Firmament: then of the waters which it ſeparateth: and laſtly of the ſeverall Heavens, together with the regions of the aire, and of ſuch appearances as we uſe to ſee there: unto which if any thing elſe be met withall pertinent to this dayes work, it ſhall be added.

The word * *Rakiah* tranſlated *Firmament*, ſignifieth *Expanſum*, or *expanſionem*, which is a ſtretching out; not onely from the earth, but about the earth: ſo that the world being mans houſe, the Firmament is as the vaulted roof of it: Or (as * *Hyperius* obſerveth) it is *tanquam theca*

* Junius, Gibbens, and others.

* *Meth. Theol. lib.* 2. *pag.* 333.

ca quædã, omnia quæ Deo ipſo inferiora ſunt, incluſa continens; as a certain huſk, ſhell, or box, incluſively containing all things without the Heaven of heavens, or which are below that place where God doth manifeſt his glorie. Which alſo is further to be ſeen in the hundred and fourth Pſalme, at the ſecond verſe, where it is ſaid that *God hath ſtretched out the heavens as a canopie*: or, *extendiſſe incurvando cœlos tanquam conopeum*, as ſome reade it: by which compariſon it ſeemeth that the Firmament is not ſo much *expanſum ratione extenſionis à centro, quàm circa centrum*; not ſo much a thing ſtretched out by reaſon of its diſtance from the centre, as about the centre.

And again, we call it the Firmament, becauſe in the ſtretching out it was not weakened, but made ſtrong: In which regard Expoſitours do well obſerve the difference which is between *Rakiah* and *Karah*. For, the word which is here uſed, they reade it *Rakiah*, and * ſay that it doth properly ſignifie a thing made ſtrong by ſtretching out; being therefore contrary to the word *Karah*, which is to break in ſtretching.

* See Gibbenſon Gen. chap. 1. queſt. 5.

And the Greeks likewiſe, that they may give a full expreſſion according to the proprietie of the word, do tranſlate it and call it Στερέωμα, from the verb Στερεόω, ſignifying to make ſtrong or firm: and thus alſo the ancient Greek Philoſophers obſerved, calling the whole compaſſe of the heavens * Στερέμνιον, meaning the very utmoſt bound of them, which is not ſo weak that it ſhould be broken in the ſtretching; but ſtrong, and farre more free from a fluid nature then is that aire which the concave of it keepeth and holdeth.

* See Lydiats diſquiſitio Phyſ. cap. 10. pag. 196.

The Latines alſo call it *Firmamentum*; and we, in our ſpeech, the *Firmament*: which in reſpect of its extenſion is the whole compaſſe of heaven on all ſides; being as it were the caſe of the viſible world and all things in it, as hath been ſhewed.

Sect. 2.

Of the waters above the Heavens.

But from the concavitie of this firmament, we may paſſe to the convexitie of it. And now if it be conſidered as it is convex, then we ſhall come to the examination of that which God aſſigned as proper to it moſt eſpecially; viz. that it ſeparate the waters from the waters. For this out-ſpread firmament is by its office to ſeparate; and to be, not above the waters, but between them: and therefore thoſe waters which it ſeparateth, cannot be ſuch waters as are in the clouds, but rather above the concave of the firmament.

If they be ſuch as are in the clouds, then are they rather in the middle of the firmament, then the firmament in the middle or between them. And this made one argue thus, ſaying, * *Expanſio in nubium regione aut finitur, aut ulteriùs extenditur: ſi ibi finitur, ſtellas infra nubes conſtitutas eſſe oporet. Sin ulteriùs extenditur, ſupercœleſtes aquas ab inferioribus expanſio non ſejungit, ſed nubes potiùs unam expanſionis partem ab altera diſpeſcunt. Atqui utrumque horum à Moſis narratione abſonum. Tutiſſimè igitur aquas cœleſtes ſupra ſidera eſſe conſtitutas; totumque illud, quod à globo terræ & aquæ ſurſum expanditur, cœli vel aëris nomine contineri ſentiemus.* That is, *The out-ſpread firmament either is ended in the cloudie region, or is further extended. If it be ended there, then the ſtarres muſt needs be under the clouds,* becauſe they are within the firmament, Gen. 1. 6. *But if it be further extended, then the ſuperceleſtiall waters are not ſeparated by the firmament, but rather the clouds ſever one part of the firmament from the other: both which are againſt Moſes his narration. Therefore we may ſafely think that the celeſtiall waters are above the ſtarres, &c.*

* Goclen. diſput. 18. ſect. 29.

In which regard it may be alſo thought that both theſe waters

waters dropping from clouds in the aire, and alſo all other waters under the canopie of Heaven, or within the concavitie of this *Expanſum*, are but the lower waters: and thoſe other, which are ſeparated from them, muſt be in an higher place, viz. above the firmament, and ſo ſhall they be divided by the firmament; otherwiſe not. To which purpoſe * *Du Bartas* thus,

I'le rather give a thouſand times the lie
To mine own reaſon, then but once deſie
The ſacred voice of th' everlaſting Spirit,
*Which doth ſo * often and ſo loud averre it,*
That God above the ſhining firmament,
I wot not, I, what kind of waters pent.

* In his ſecond day of the firſt week.

* Gen. 1. 7. Pſal. 104. 3. Pſal. 148. 4.

Or, as * *Hyperius* alſo writeth, *Aſſentiemur Moſi, ac ſimpliciter ſtatuemus aquas non tantùm infra firmamentum, ubi in portiones & quaſi regiones certas ea ipſa ſunt diſtributæ, aliæq; per aërem circumvehuntur, aliæ terris ſunt adglutinatæ; verùm etiam ſuper illud eſſe alias undique circumfuſas.* That is, *Let us aſſent to Moſes, and plainly determine that there are not onely waters below the firmament, as it were divided into certain portions and regions, ſome of them carried about through the aire, ſome faſtened to the earth; but alſo that there are other waters above the firmament ſpread round about it.*

* Hyp. Meth. Theol. lib. 2. pag. 335.

Which thing is alſo thus further manifeſted; becauſe thoſe waters that are ſeparated by the firmament, are to be at all times ſeparated. For God, in the creation of this firmament, did not onely command that it ſhould ſeparate, but alſo that it ſhould be ſeparating: that is, Let it *continually ſeparate or divide the waters from the waters; * *quaſi voluerit nullũ eſſe tempus quo non diſtinguat; as if he would have it that there ſhould be no time wherein it might not diſtinguiſh between the one and the other.* Which as it cannot be done unleſſe there be alwayes waters

* Ainſworth on Gen.
* Lydiat. diſquiſit. in Phyſ. cap. 10.

ters to be diſtinguiſhed; ſo neither can it be pertinent to thoſe vvaters in the clouds, becauſe the aire is often clear, and thoſe bottles of rain are not alwayes there.

* Jer. 10. 13.

And again, it is from the vapours drawn from * belovv that clouds & rain come: vvhich cannot at all times be; but then onely vvhen there is a naturall concourſe of cauſes to effect it. And then again vvhen they are there, they be ſoon gone: for the rain, proceeding from thoſe vapours vvhich vve call the clouds, ſtayeth not long in the aire, but forthvvith falleth dovvn again and ſo by little and little the vapour conſumeth and the cloud is gone. Hovv can it therefore be that theſe ſhould be thoſe ſuperceleſtiall vvaters ſeparated from all other vvaters by the firmament, ſeeing the firmament is above them? and not oneſy ſo, but alſo their proper place is here belovv, being but at times dravvn from hence, and then it is as it vvere againſt their vvills, vvhich makes them therefore haſten hither again with all the ſpeed they can: vvhereas on the contrary the firmament is to be betvveen thoſe vvaters, and not over them; ſeparating them not at times, but continually.

Neither may it ſeem ſtrange how the out-firmament can be able alwayes to uphold them, ſeeing (as hath been ſaid) it was made ſtrong by ſtretching out, lifting then the waters up with it, and therefore well fitted for this office, and can no more fall then * the heaven it ſelf, whoſe beams or rafters are laid in the waters as the Prophet ſpeaketh, Pſalme 104.3. And hereupon it alſo was that noble *Bartas* ſaid,

* *Deridere non magis quàm cœlum ipſum queuni, Hyper. Meth. Theol. lib. 2. pag. 335.*

I ſee not why mans reaſon ſhould withſtand,
Or not believe that He whoſe powerfull hand
Bay'd up the Red ſea with a double wall,
That Iſraels hoſt might ſcape Egyptian thrall,
Could prop as ſure ſo many waves on high
Above the Heav'ns ſtarre-ſpangled canopie.

Thi-

This was his opinion concerning the waters ſeparated by the firmament; of which opinion are ſundry more.

But on the contrary ſide are other ſome who are of another mind, affirming that they are meant onely of thoſe waters in the clouds: for (ſay they) the aire is called the firmament; ſo alſo is the skie, &c. And of the clouds it is ſaid in Job, that * *God bindeth up his waters in thick clouds, & the cloud is not rent under them.* So that, firſt as every part of the water is called by the name of water; in like manner every part of the firmament is called by the name of the firmament: in which regard thoſe waters in the clouds, although no higher then the aire, may be taken for thoſe waters which the firmament doth ſeparate: and ſecondly, that place in Job ſheweth no leſſe, making it appear, how and in what manner the waters are ſeparated by the firmament.

The contrary and their reaſons.

* Job 26. 8.

Furthermore, *Ex ipſa nubium natura*, ſaith * *Pareus*, *From the very nature of the clouds* this appeareth to be ſo: for what other thing are the clouds but waters ſeparated by force of the diurnall heat, and by the cold of the aire made thick? whereupon (as *Plinie* calleth them) they are ſaid to be* *Aquæ in cœlo ſtantes, Waters ſtanding in the heavens.* Alſo, it may be added (ſaith *Pareus*) that Moſes makes mention but of two kinds of waters *ſuperas, & inferas, the higher & the lower*: but the clouds are waters, as hath been ſhewed; and no low waters; therefore they are the upper waters: unleſſe there be three kinds of waters, which is contrary to Moſes.

* *In Gen. pag.* 170.

* *Plin. lib.* 31. *cap.* 1.

Beſides, this (ſaith he) is confirmed by the grammaticall conſtruction of the words. For Moſes ſaith not that it divided from the waters which were *ſupra Expanſum*; but thus, viz. from the waters which were *deſuper Expanſo*: The ſenſe therefore is, not that the waters were carried up above the whole *Expanſũ* or Firmament; but rather that they were carried upwards, ſo, as that with the

the firmament they were *ſupra & deſuper*; that is, *above and on high.*

Alſo, the name of heaven confirms no leſſe: for (ſaith he) the *Expanſum* is called according to the Hebrews *Schamajim* or *Shamajim*; from *Sham*, *There* & *Majim*, *Waters*: which derivation is common. And therefore thoſe upper waters are not quite above the *Expanſum*, or the Firmament; but are *there*, that is, in the Firmament, namely in the middle Region of the aire.

The reader is left unto his free choice.

Thus we ſee the difference concerning theſe waters. And now let the Reader chooſe which opinion likes him beſt. But for mine own part I like this latter worſt: yet let me not tie another to be of the ſame minde any further then he pleaſeth: for it is no matter of faith, and therefore we have our free choice according to the beſt reaſons and moſt forcible demonſtrations. Wherefore let me proceed a little further, that thereby (as near as I can) I may ſet down that which ſeemeth to me the beſt meaning and neareſt to the truth.

The matter in queſtion is cleared by anſwering the contrary arguments.

Firſt then I anſwer, that they do miſtake who divide the *Expanſum* into parts, as if in ſo doing they could abſolutely clear the matter in queſtion: for it is not a part of the Firmament that is appointed to this ſeparating office, but the whole Firmament; as any one may ſee, if he do but obſerve the words of God, producing and aſſigning it. Neither do we find that the firmament is any more then one. To divide it into parts ſo as they imagine, is not to divide it into parts, but rather to make ſo many Firmaments as they imagine parts; like as every ſcale of an onyon is a ſeverall and differing ſcale, & not one the part of another. And beſides, neither is there the ſame reaſon between the parts of water and theſe ſuppoſed parts of the Firmament: for then when God made the Sunne, Moon, and Starres, he would not have ſaid, Let them be *in the Firmament*, but *above the Firmament*; for they

they are farre higher then the clouds ;yet, I ſay, they being higher then the clouds,he is ſaid to place them but in the Firmament : and they being no more but in it, how improperly do we affirm thoſe things to be above it, whoſe places are lower then either Sunne, Moon, or Starres !

The ſunne,moon, and ſtarres, are higher then the clouds, and yet they are not ſaid to be above the firmament but in it: the fowls alſo flie in it, but not above it.

And ſecondly, admit Job tells us that there are waters bound up in thick clouds;doth not Jeremie alſo tell us that they are drawn up in * vapours from the earth ? which (as hath been ſhewed) cannot at all times be,but then when there is a naturall concourſe of cauſes to effect it : whereas the out-ſpread Firmament is to be alwayes between them, ſeparating them, not at times, but continually. And as for the rain proceeding from thoſe waters which we call the clouds, it ſtayeth not long in the aire, but forthwith falleth down again ; ſhewing that of right their proper place is here below ; and therefore we make not three kinds of waters (as if we would be contrary to Moſes)in ſaying that there are other waters above the concave of the Firmament, which on this ſecond day of the worlds creation were ſeparated from all other waters.

* Jer. 10. 13.

Wherefore obſerve but this, they being ſeparated on this ſecond day, how could they be ſuch as the aire affordeth ? for the middle Region of the aire, which is the place for the clouds, was not untill the third day : Not untill the third day, I ſay, becauſe it is found by experience, and from ſufficient witneſſe proved true, that the tops of the higheſt mountains do reach up unto that place which we call the middle Region of the aire, being ſome of them more loftie then the clouds.

There was no middle Region untill the third day.

As for example, in *Japan* there is a mountain called *Figeniana*,which is ſome certain leagues higher then the clouds.And in *Ternate* among the *Philippine* ilands there is a mountain,which(as Mr.*Purchas* in his pilgrimage relateth)

lateth) is even angry with nature becauſe it is faſtened to the earth, and doth therefore not onely lift up his head above the middle Region of the aire, but endeavoureth alſo to conjoyn it ſelf with the fierie Element. And of the mountain *Athos* between *Macedon* and *Thrace*, it is ſaid to be ſo high, that it caſteth ſhade more then * thirty & ſeven miles. Alſo the mount of *Olympus* in *Theſſalie* is ſaid to be of that height, as neither the winds, clouds, or rain do overtop it. And (although I omit ſundry others of exceeding height) it is alſo written of another mount ſo high above the clouds, that ſome who have ſeen it do witneſſe that they have been on the top of it, and have had both a clear skie over their heads, and alſo clouds below them pouring down rain and breaking forth with thunder and lightnings: at which thoſe below have been terrified, but on the top of the hill there was no ſuch matter. This ſurely was that mountain which *Mr. Lydiat meant when he ſaid, that *etiã æſtivis diebus, even in the ſũmer time*, when the clouds are at the higheſt, thoſe on the top of the mountains have had fair weather, and withall perceived that there was plentie of rain about the middle height of the ſame hills.

* Viz. 300 furlongs which make 37 miles and an half.

As *Atlas*, *Pelion*, *Oſſa*, *Cauſaſus*, and *Tabor*, which laſt riſeth up 30 furlongs, as *Joſephus* writeth.

* *Lyd. de orig. fontium, cap.* 10.

Thus we ſee that there are lofty mountains: And indeed their loftines is the cauſe of a middle Region: for the hills, hindering the aire from following the motion of the heavens, do make it about their tops a fit & convenient place to thicken theſe vapours into clouds, which by the attractive power of the heavenly bodies are drawn up thither.

Wherefore (that I may conclude) the place of the middle Region being both cauſed and alſo overtopped by ſundry high mountains, it will appear that there was no middle Region of the aire untill the third day, becauſe the waters were all over the earth, and ſtanding above the hills untill that very day: For then, and not before, God gathered them together unto one place, and made

the

thé drie land to appear, which before was covered with waters as with a garment, Pſalm. 104. *Rarior aqua*, ſaith one *velut nebula, terras tegebat, quæ congregatione denſata eſt; The thinne water, like a miſt or wet cloud, covered the earth, which by gathering together was made thick*; In which regard it may be ſaid, ſaith* *Aquinas*, that it was as naturall for the water to be every where about the earth, as for the aire to be about both water and earth; yet nevertheleſſe, *propter neceſſitatem finis*, ſaith he, *for the neceſſitie of the end*, namely that plants and living creatures ſhould be upon the earth it was meet that the earth ſhould be ſo uncovered, and the waters ſo gathered, that the drie land appear. Now this was a work pertinent unto the third day; and before this work done there could be no middle Region: and the middle Region being on this day and not before, how can the waters in the clouds be thoſe waters which were ſeparated by the out-ſpread Firmament on the ſecond day? Neither do I here argue *à facto ad fieri*, becauſe in the very creation of this Firmament, God then ſaid, *Let it be between the waters*; that is, even then beginning its office and act of ſeparating them. Which that it is even ſo, we ſee he ſpeaketh next concerning the lower waters, and makes no more mention at all of thoſe upper ones, becauſe he had already done with them, and left them in their place unto which he had appointed them.

* *Aquin. Sum. par. 1. Quæſt. 69. Art. 1.*

But furthermore, this tenet is not a little helped by a conſideration of the cataracts or windows of heaven which in the dayes of Noah were opened, and poured down rain by the ſpace of fourty dayes: For methinks the clouds could not be thoſe windows of heaven, becauſe it rained fourty dayes, and before it left raining the waters were higher then the hills, being, when fourty dayes were ended, fifteen cubits above the higheſt mountains, as in the hiſtorie of the Floud is manifeſt.

Of the windows of heaven opened in the Floud.

And

And hereupon it was that one once by the ſame reaſon concluded and ſaid, that either it did not rain fourty dayes, (which aſſention we are ſure is falſe) or elſe it rained from ſome other where then from the middle Region : For ſeeing the middle Region it ſelf was drowned before it ceaſed to rain, it cannot but be that the rain deſcended from ſome higher place.

1 *Object.* But perhaps ſome may think that the clouds mounted higher and higher as the waters increaſed ; inſomuch that as the waters by little and little gat above the mountains, ſo did the clouds.

Anſw. This cannot be ; becauſe that which makes us diſtinguiſh the aire ſo as it may have a middle Region, is nothing elſe but the differing temper that it hath, both from the upper and lower Region ; and this differing temper is cauſed by the hills, which hindering the aire from following the motion of the heavens, do make it a fit place to thicken thoſe vapours into clouds, which by the attractive power of the ſtarres and planets are drawn up thither ; as already hath been ſhewed, and as afterwards ſhall be touched when I come again to ſpeak of the ſeverall Regions and their tempers ; ſhewing you that it is an Axiome undeniable, that the farneſſe from a circular motion gives quietneſſe, coldneſſe, and heavineſſe ; even as the nearneſſe to it gives motion, heat, and lightneſſe.

2 *Object.* Or ſecondly, perhaps ſome may think that the hills and mountains were not before the Floud, but made by the violence of the waters ; And that Moſes, when he would deſcribe how high the waters were, doth but ſhew us that they were higher by fifteen cubits then the higheſt mountain that was then in his time : which he might well ſay, and make ſuch a compariſon, although there were no hills before the floud.

Anſw. That which hath been ſaid in the former anſwer

ſwer concerning the cauſe of the middle Region, doth ſufficiently ſtop this laſt objection, unleſſe it be granted, that there were no clouds untill the Floud had made the hills: And indeed if any ſuch thing be granted, then all is granted, and the controverſie quite ended concerning theſe waters above the Heavens.

That hills and mountains were not cauſed by the Floud.

But beſides that anſwer, I hope to make it appeare that mountains, valleys, and plains were created in the beginning, and were before the Floud in the dayes of Noah.

For firſt, if hills were cauſed by the Floud, then it muſt be that the waters ſuffered an extreme violent motion: but the waters being over the whole face of the earth had nothing to hinder them from their own free motion, nor any thing to compell them to a violent motion; ſuch I mean as ſhould make them work ſuch wonders as are ſuppoſed. Had they been overtopped by any thing, then indeed running from one place to another there might have been a repercuſſion, and by ſuch contention more ſtrange accidents then were, might have been produced, the making of hills, and the like.

Or ſecondly, if there were ſuch a violent motion, (as queſtionles the waters moved untill all places were filled alike, with no ſmall violence) yet the violence was not ſo great as to be the parent of the hills and mountains; for then without doubt it would have been ſo forcible alſo as to have turned rivers, & changed them from one place to another, caſt down all manner of buildings and ſtructures, rooted up all trees and the like, ſo that after the Floud nothing ſhould have had the ſame name, bounds, and deſcription which before it had, neither would the memories of the former ages have been but buried from all ſucceeding time; which we know is otherwiſe: for if it were not, it is likely that Moſes ſpeaking of the ſite of Paradiſe, and ſetting down all the

rivers of it exactly, would have ſpecified it in his hiſtorie, that thereby after-ages looking for thoſe places might not miſtake or ſuſpect the truth of his relation. Neither have we juſt cauſe to think that all buildings & ancient monuments of the Fathers before the floud were extinguiſhed in the floud: For it is reported by * *Pomponius Mela* and *Plinie* concerning the citie *Joppa*, that it was built before the floud, & that *Cepha* or *Cepheus* reigned there; which is witneſſed by certain ancient altars bearing titles of him and his brother *Phineus*, together with a memoriall of the grounds and principles of their religion. And of the citie *Henoch* there is a much like relation. But what need I mention more, ſeeing* *Joſephus*, a writer of good credit, affirmeth that he himſelf ſaw one of thoſe pillars which was ſet up by Seth the ſonne of Adam? and this for the truth of it was never queſtioned, but warranted by all antiquitie.

* *Pom. Mela, lib. 1. cap. 11. & Plin. lib. 5. cap. 13.*

* *Antiq. lib. 1. cap. 3.*

Moreover, ſeeing the dove was twice ſent out of the Ark, & returned with an olive branch at her laſt return, & not at her firſt, it is not without reaſon that we think the trees were not torn up by their roots, but remained ſtill fixed in the ground even as they had done before; for, if the trees had been ſwimming or floating upon the waters (as ſome may think) then the poore dove might have found one branch or other as well at the firſt as ſecond time. Beſides, when ſhe did bring any thing, Noah took it not as a token what havock the floud had made, but as a ſigne that the waters were decreaſed: ſhe therefore plucked it off from ſome tree growing on the earth, and not floating on the waters.

And laſt of all (although I ſay nothing of the delectation and profit of the mountains, which do thereby even amplifie the goodneſſe of God in his works, creating & not occaſioning them) I ſhall need to point you no further then to the plain text it ſelf, which doth moſt plainly

ly tell us, not that the waters were as high as the higheſt mountains which are now, or were then when Moſes wrote his hiſtorie, but that even from the beginning there were hills and mountains whoſe loftie tops in the univerſall floud were covered with waters: for thus ſtand the words,* *And the waters prevailed exceedingly upon the earth; and all the high hills which were under the whole heaven were covered. Fifteen cubits upward did the waters prevail; and the mountains were covered.* Whereupon, as I remember, * one writeth thus, ſaying that this judgement was admirable, ſeeing there are mountains, as *Atlas, Olympus, Caucaſus, Athos,* and other ſuch, that are ſo high, as their tops are above the clouds and winds (as Hiſtoriographers do report it) and yet ſee, all theſe are covered: and theſe being covered, the middle Region muſt needs be drowned; and that being drowned, how could the clouds be thoſe windows of heaven which poured down rain for fourtie dayes? And thoſe not being the windows of heaven, it cannot but be that the waters above the heavens are in a more remote and higer place, even above the concave of the out-ſpread Firmament.

* Gen. 7. 19, 20.

* A inſ. on Gen.

3. *Object.* But perhaps you may think that I now pitch too much upon reaſon concerning this of the Floud, ſeeing it was cauſed not by naturall and ordinary means, but by the extraordinary power of God.

Anſw. To which it is anſwered, that this Floud was partly naturall, partly ſupernaturall; and to ſhew how farre nature had a hand in this admirable effect, we may diſtinguiſh with them, who ſay that an effect may be called naturall two manner of wayes: firſt, in regard of the cauſes themſelves: ſecondly, in regard of the direction and application of the cauſes. If we conſider the mere ſecondary and inſtrumentall cauſes, we may call this effect naturall; becauſe it was partly performed by their

help and concurrence: but if we conſider the mutuall application and conjunction of theſe ſecond cauſes together with the firſt cauſe, which extraordinarily ſet them on work, we muſt needs acknowledge it to be ſupernaturall.

Now then, although we have built upon reaſon, and ſo found that before fourtie dayes fully ended the middle Region it ſelf was drowned, whereupon it could not rain from thence; yet in ſo doing we do not argue amiſſe: for it is no whit derogating from the power of the Almighty to aſcend up higher till vve find the cauſe of this long rain, and alſo the place from vvhence it came, ſeeing that vvhen vve have ſo done vve ſhall plainly find, that in regard of the direction and application of the cauſe it vvas extraordinarily ſet on vvork by a divine diſpenſation; and ſo the effect was ſupernaturall.

I may therefore now proceed: and that I may make the matter yet a little plainer concerning theſe cataracts or windows of heaven, and ſo by conſequence of the waters alſo above the heavens, this in the next place may be added; namely, that Moſes ſetteth dovvn tvvo cauſes by vvhich there grew ſo great an augmentation of vvater as vvould drovvn the vvorld: the one vvas the fountain of the great deep: the other vvas the opening of the vvindows of heaven. Now if theſe windows were the clouds, then it ſeemeth that the vvaters vvere increaſed but by one cauſe: for the clouds in the aire come from the vvaters in the ſea, vvhich by deſcending make no greater augmentation then the decreſion vvas in their aſcending. And although it may be thought that there are waters enough vvithin the bovvels of the earth to overflovv the vvhole earth (vvhich is demonſtrated by comparing the earths diameter vvith the height of the higheſt mountains) yet ſeeing the rain-vvater is made a companion vvith the great deep in the augmentation of the drovvning vvaters,

I ſee no reaſon why that ſhould be urged againſt it; eſpecially ſeeing it is found that the earth emptied not all the water within her bowels, but onely ſome: For thus ſtand the words,* *The fountains alſo of the deep, and the windows of heaven were ſtopped, and the rain from heaven was reſtrained:* their ſtore therefore was not ſpent when they had ſufficiently drowned the world, but their fury rather was reſtrained, when they had executed Gods purpoſe by climbing high enough above the hills.

Gen. 8.2.

Cardinall *Cajetane* was conceited that there was a mount in Paradiſe which was not overflown, and there forſooth he placeth *Henoch*: The like dream alſo they have amongſt them concerning *Elias*: And, as their champion and Goliah* *Bellarmine* is perſwaded, all thoſe mountains onely were overflown where the wicked dwelt. * *Joſephus* alſo reporteth out of *Nicholas Damaſcenus*, that the hill *Baris* in *Armenia* ſaved many who fled thither for ſuccour. But theſe are dreams and devices, which are ſoon overthrown by Moſes in his foreſaid evident text; where the words are ſo generall, that they include all and every mountain, under, not onely the Aiery heaven (as *Cajetane* collecteth) but under the whole Heaven without exception.

* Dr. Will. ex Bal. de gra. pri. hom.

* Antiq. lib. cap. 4.

And now after all, what hindereth that there ſhould not be waters above the concave of the Firmament, and that the opening of the windows of heaven ſhould not be more then the looſing of the clouds? For it is affirmed, and not without reaſon you ſee, that the rain, or a great part of it which fell in the univerſall Flood, came from an higher place then the middle Region of the aire: and that the upper waters are to be above the Firmament, and not the parts of it, is an aſſertion well agreeing to Moſes his deſcription of this ſecond dayes work. For (as hath been ſhewed) concerning the fowls and ſtars, it is true that they are but in the Firmament, and not above

it: neither is there any more Firmament then* one, seeing Moses mentions not a second. The fowls indeed fly above the earth (as the text it self speaketh in Gen. 1.20. but not above the Firmament: their course being (as *Junius* reads the place) *versus superficiem expansi cœli*; or *ante expansum*; or *coram expanso cœli*; but never *supra expansũ*. And as for the starres, the text likewise saith, ver. 15. *Let them be for lights in the out-spread Firmament*; mentioning never more then one and the same Firmament. But for the waters, it is otherwise: The Firmament is appointed to separate them, as being between, and not above them. *Esto expansũ inter aquas* (it is learned *Junius* his right version of the place) *ut sit distinguens inter aquas. Fecit ergò Deus expansũ quod* distinguit inter aquas quæ sunt sub expanso, & inter aquas quæ sunt supra expansum.* That is, *Let there be a firmament between the waters*, &c. *Between the waters*, as having waters above it: And how unlike it is, that the upper waters should be placed otherwise, let the former reasons witnesse: For, all things considered, we need not stand so much upon *Pareus* his reading *Super, quasi in expãso*, & *desuper expanso*, as if they were but above, or on high within the concave, as are the fowls and starres: this (I say) we need not stand upon, seeing *Junius* readeth *Supra expansũ*, without any such nice salving, although he thinketh with *Pareus* that these upper waters are no higher then the middle Region of the aire. And also admit that some derive the word *Schamajim* or *Shamajim* (which signifieth *Heavens*) from *Sham*, *There*, or *in that place*; and from *Majim*, *Waters*; concluding thereupon that these waters which we now speak of must be *There*, viz. *in* the heavens, and not *above* them: although some (I say) make this derivation, yet others derive the same word otherwise: And no* few be there, who, not without reason, do suppose that it is no derivative nor com-

* *Necessariò faciendum est, si modò nubes sint superiores illæ aquæ, duo esse expansa, & ità duo, ut de fabrica illius quod durius nullò est nobilius nulla fiat mentio*, Lyd. *de orig. font. cap.* 10.

* *Dilinguit*, a word of the present tense, noting the present performance of that which it was made for.

* As Val. Schindl. & Fagius upon Gen. chap. 1. out of Aben Ezra.

compound word at all; but rather that the Iſmaelitiſh word *Schama*, which ſignifieth nothing elſe but *High* or *Above*, doth proceed from this word *Schamajim* which in Engliſh we reade *Heavens*: In which regard the Etymologie helpeth nothing to prove the adverſe part.

And yet (as I ſaid before) let the reader take his choice: For perhaps he may now think after all, that if there be waters above the ſtarry heaven, and that part of thoſe waters deſcended in the time of the Flood, that then the Heavens would have been corrupted and diſſolved (as ſome have ſaid) the rain falling through them from the convexitie of the out-ſpread Firmament.

Sect. 3.

An objection anſwered concerning the nature of the Heavens, examining whether they be of a Quint-eſſence.

But concerning this it may be ſaid, that it is not known whether the heavens be of ſuch a nature, as that the rain falling through them ſhoud diſſolve or corrupt them. Thoſe indeed who follow *Ariſtotle*, make them of a *Quint-eſſence* altogether differing from things compounded of the Elements: But for mine own part more eaſily ſhould I be perſwaded to think that there is no ſuch fifth eſſence in them, but rather that they are of a like nature with the Elements, or not much differing.

For firſt, although *Ariſtotle* deny any change or alteration to have been obſerved or ſeen in the heavens ſince the beginning of the world; yet he was deceived: For *Hipparchus*, who had better skill in Aſtronomy then ever *Ariſtotle* had, he (as *Plinie* witneſſeth) telleth us out of his own diligent and frequent obſervations that the heavens have had changes in them; for there was in his dayes a new ſtarre like unto that which was once in *Caſſiopea*. And that which is beyond the authority of

* *Plin. lib. 2. cap. 26.*

the greateſt philoſopher, doth alſo witneſſe as much; I mean the ſacred voice of the everlaſting Spirit, affirming that the two parts of this Univerſe, the heavens as well as the earth, do both of them * *wax old even as doth a garment*: which is as if it ſhould be ſaid, that by little and little they are changed, tending ſo long to corruption till at laſt ſhall come the time of their diſſolution.

*Pſalme 102 26.

What great difference then can there be between the heavens and things here below, ſeeing in their own natures both of them do tend to corruption, and are ſubject to mutation?

Beſides, as it is with Man who is the little world, ſo certainly it is with *Macrocoſme* who is the greater world: but man changeth and declineth daily, not being now as heretofore he hath been; and ſo alſo as a good conſequence it muſt follow, that the greater world doth alſo ſuffer change, and, by declining, alteration. That man declineth, * ſaith one, is a thing moſt manifeſt: For men are of lower ſtature, leſſer bones and ſtrength, and of ſhorter lives then their forefathers were. Now from whence cometh this but from the declining eſtate of the greater world? The earth, we ſee, which is the lower part of it, is not ſo fruitfull as before, but beginneth to be barren like the wombe of Sarah; neither do the fruits which ſhe bringeth forth, yield ſo much nutriment as heretofore they have done. And how cometh that to paſſe but becauſe the heaven alſo fainteth? For the Planets wax old and cannot afford ſo great virtue and influence to theſe lower bodies, as in times paſt they did; which * *Plinie* and *Aulus Gellius* teſtifie. And indeed this muſt needs be a manifeſt proof, ſeeing leſſe and weaker bodies are conceived every Age in the wombe of nature, that nature therefore waxeth old and weary of conceiving.

* Dove confut. of Atheiſ. chap. 14.

* *idem. ex Plin. lib 7. cap. 16. & ex Aulo Gell Noct. Att. l. 13. c. 1.*

Alſo,

Alſo, ſaith he, if a man do but behold the face of heaven, the *Moon* looketh pale and wan, *Mars* leſſe rubicund, *Sol* leſſe orient, *Jupiter* not of ſo amiable and favourable countenance, *Venus* more hypocriticall, and all the reſt both of the wandring and fixed ſtarres more weak and ſuſpicious then they did before. That mighty *Giant, which was wont to runne his unwearied courſe, now waxeth wearie, as if he would ſtand ſtill in heaven, as he did in the dayes of Joſhua; for he ſhineth more dimmely, and appeareth more ſeldome then before, being much nearer to the earth then of ancient times. For, (if we may give credit to the calculations of the chief maſters in Aſtronomie) the Sunne, quoth *Copernicus*, and after him alſo *Stoſler*, is nearer to the earth then it was in the dayes of *Ptolomie*, by the ſpace of twenty ſix thouſand, ſix hundred and ſixtie miles: or (as *Philip Melanchthon* ſaith) nine thouſand, nine hundred, ſeventie and ſix miles; to whom (ſaith * *Dietericus*) aſſenteth that famous Mathematician of our age, *David Origanus*, in his Prognoſtication for the yeare of our Lord 1604.

* Pſal. 19. 5.

* Dietr. Poſtill. Dom. 2. in Adventu.

All theſe are proofs: and although we do not greatly contend concerning this laſt allegation of the Sunnes approch ſo near us, yet nevertheleſſe the aſſertion in generall is true enough, that the heavens as vvell as the earth, as they grovv older and older, do ſuffer change, and in that regard their natures cannot but be much alike.

Unto vvhich adde this, namely, that theſe viſible heavens, of vvhich vve novv ſpeak, vvere taken from that maſſe or lump vvhich lay here belovv, & that the vvhole lump vvas created at once; in vvhich regard it cannot be denied that they differ *toto genere* or altogether, but that they are of a much like nature vvith inferiour bodies or things here belovv. And as for *Ariſtotle*, he never would ſo earneſtly have defended the contrary, had he not knovvn

known that it was an excellent means to colour that which he alſo held concerning the worlds * eternitie.

* *Phyſ. lib. 8. cap. 1. & alibi.*

But beſides all this, the obſervations of our beſt and modern Aſtronomers make much againſt him: for they have modeſtly & manifeſtly proved, that not onely new ſtarres, but comets alſo have been farre above the moon. As for example, that ſtrange ſtarre which once was at the back of *Caſſiopea's* chair, was of an extraordinary height above it; for it ſhined without any difference of Aſpect, Parallax, or diverſitie of ſight, even untill all the matter whereof it conſiſted was conſumed; having alwayes (as the obſervers thereof do witneſſe) one and the ſame ſtation to every of the ſtarres, both in all climates, and alſo in all parts of the heaven, no diverſitie of ſight at all obſerved: all which in the lowermoſt Planets is otherwiſe, and perceived moſt of all in the moon, becauſe the Semidiameter of the earth (according to which quantitie we dwell from the centre) hath a ſenſible bigneſſe unto the diſtance of the moons ſphere from us. Had therefore that New ſtarre, Comet, or what you pleaſe to call it, been lower then the moon, and not in the ſtarrie heaven, then (like the inferiour Planets) it would have ſuffered a Parallax or diverſitie of ſight, and never have kept ſuch a regular motion as it did; contending not to be overcome of the ſtarrie heaven in its motion, but to keep as it were an equall pace with it: thereby ſhewing that it was even in the Ethereall heaven it ſelf. For this is a rule, that by how much a ſtarre is higher then the earth, by ſo much it imitateth the higheſt heavens in their daily motion.

Neither was it this ſtarre alone but others alſo after it, even Comets themſelves, whoſe places were found to be above the moon: for obſerving more diligently and exactly then in former times, the obſervers could eaſily demonſtrate this truth alſo: thinking thereupon that many of thoſe Comets which have been ſeen in former

ages.

ages, vvere burnt out, even in the ſtarrie heaven it ſelf, and not ſo many of them belovv the moon, as generally (vvithout ſerious obſervation) have been ſuppoſed.* *Longomontanus* proveth this, both in that laſt Comet vvhich vvas ſeen in the yeare 1618. and alſo in other Comets before it. And novv vvhat of all this? Nothing but onely thus: *viz.* If Comets be burnt, conſumed and vvaſted in the ſtarrie heavens, it ſeemeth that there is no great difference betvveen them and things here belovv: for if there vvere, it might be thought that they vvould not ſuffer ſuch earthly matter to aſcend up their territories; ſuch, I ſay, as doth either vvholly or in part compoſe them. Wholly or in part I adde, becauſe (perhaps) even the heavens themſelves may afford ſome matter tovvards the generation of them, eſpecially if they be* nevv ſtarres, ſuch as *Ariſtotle* never ſavv; vvherefore he vvrites that a Comet conſiſteth altogether of an hot, drie, and a kind of oylie exhalation dravvn from the earth: and queſtionleſſe in ſuch as are utterly belovv the moon it is even ſo; but if they be higher and continue longer, they, as vvell as nevv ſtarres, may have ſome help from ſuch matter as the heavens afford tovvards the generation of ſtrange appearances: vvhich though they have, yet that they have no earthly matter is not excluded, becauſe next under God the efficient cauſe of theſe things is attributed to the ſtarres and their operation; for vvhen they are aptly and conveniently placed and aſpected, then by their povver, vvorking upon things here belovv, they dravv up hot, drie, and oylie exhalations, and theſe exhalations afford unto Comets that matter vvhereof they conſiſt. *Ptolomie* attributeth much in this kind to *Mars* and *Mercurie*; and ſo do many others elſe beſide him: and vvhy the yearely aſpects of theſe ſtarres do not alvvayes produce ſuch effects, is becauſe they are not alvvayes aſpected in the ſame manner, but ſometimes in one part of

* *Lib. de novis cæli Phænom.*

* For nevv ſtarres Tycho affirmeth it, *lib. de nova ſtella.*

of the heavens, ſometimes in another, and cannot therefore produce their intended effects, vvithout either the meeting or avoiding of apt or inconvenient occurrences.

But I conclude, and do yet affirm that the nature of the heavens is certainly ſuch, that the vvaters above the heavens might paſſe or iſſue through them in the time of the Floud, and yet the heavens not be diſſolved, or ſuffer damage by their falling; damage, neither in corrupting them, nor yet in leaving a vacant place by coming all avvay: of vvhich in the fourth dayes vvork, vvhen I come to ſpeak of the ſtarres, I ſhall adde yet ſomething more.

CHAP. V.

How to underſtand the word Heavens; *and of the ſeverall Regions of the aire, together with a conſideration of ſuch appearances as we uſe to ſee there.*

Sect. 1.

AND novv to go on vvith the reſidue of this dayes vvork: *God* (ſaith Moſes) *called the firmament Heavens*, &c.

By *heavens* in this place Moſes meaneth onely the viſible heavens, becauſe he ſpeaketh onely of the viſible part of the vvorld. And yet the ſame vvord vvhich is here uſed is ſometimes put for the *aire, vvherein vvinds, clouds, and fovvls do flie: ſometimes for the * upper Firmament, vvhere the ſunne, moon, and ſtarres are ſet: and ſometimes for the high places, vvhere *Angels dvvell. And hereupon it vvas that S. Paul mentioned the third *heaven, vvherein he ſavv things unſpeakable.

* Dan. 7. 2, 13.
*Pſalm. 8. 9. Gen. 1. 16. 17.
* Math. 22. 30.
* 2. Cor. 12. 2.

The firſt of theſe is like to the outvvard court of Solomons temple, and is the moſt open to us.

The ſecond is like his invvard court, leſſe open, and abounding vvith ſtarrie lights or lamps never going out.

And the next is as the *Sanctum Sanctorum*, vvhither he is entred once for all, vvho is a Prieſt for ever, and maketh interceſſion for us.

In

c Bish. Halls contemplations.

In the two loweſt is no felicitie; for neither the * fowls nor ſtarres are happie. It is the third of theſe alone where the bleſſed Trinitie enjoyeth it ſelf, and the glorified ſpirits enjoy it.

And queſtionleſſe in this higheſt part muſt needs be more then exceeding glorie, ſeeing the other two within the concave of the Firmament are ſo full of wonder.

But of the one of them I ſhall need to ſpeak little in this dayes work: yet of the other under it, as being more pertinent, ſomething muſt be added.

Sect. 2. Parag. 1.

Of the Aire and the ſeverall Regions in it.

WE may therefore now (if you pleaſe) look into the Aire: and here, following the common path, and ſeparating it from the ſtarrie heaven, I muſt ſay that it is divided into three ſtages or Regions: although I verily think (as afterwards ſhall be ſhewed when I come to ſpeak of the ſtarres) that all this ſpace, even from the earth to the eighth ſphere, is nothing elſe but aire.

The higheſt Region.

The higheſt Region is ſaid to be exceeding hot, and alſo drie, by reaſon of the neighbourhood that it hath with the fierie element (as is ſaid) and with the ſtarres; by the force of whoſe beams it receiveth heat, which is alſo much increaſed by following the motion of the heavens.

The loweſt Region.

The loweſt Region is ſomewhat contrary; for it is ſaid to be hot and moiſt; hot chiefly by the reflection of the ſunne-beams meeting with the earth; and moiſt by reaſon of the proper nature of the aire, and alſo by reaſon of the vapours exhaled out of the earth and water. This is the qualitie which commonly is attributed to this Region.

But I think that we may rather ſay it is variable; now hot.

hot, now cold, and ſometimes temperate; differing according to the times and ſeaſons of the yeare: In which regard *Du Bartas* writeth thus,

Warm-temper'd ſhow'rs do waſh it in the Spring;
And ſo in Autumne, but more varying:
In winter time 'tis wet, and cold, and chill:
In Summer ſeaſon hot and ſoultry ſtill;
For then the fields, ſcorched with flames, reflect
The ſparkling rayes of thouſand ſtarres aſpect,
The chief is Phœbus, *to whoſe arrows bright*
Our * Globie Grandam *ſerves for* But *and* White.

* The earth.

Neither is it altogether variable in regard of time, but alſo by reaſon of the diverſitie of place; ſome climates being more hot and drie, ſome more cold and moiſt then others; which cometh to paſſe according to their diſtance from the Equinoctiall towards either of the Poles.

Thus for theſe two Regions. But now concerning the middle Region, it is alwayes cold: yet ſurely in its own nature it would be warmer then the Region which is here below, were it not cooled by a cold occaſioned by the reflection of the Sunne-beams: For they, reflecting upon the earth, drive up above the beams of their reflection much cold from below, which being daily ſupplied is kept as a continuall priſoner between the heat above and the heat beneath.

The middle Region.

Or, if you will, take it thus, namely that it is cold, but not extremely cold: yet cold (I ſay) it is in reſpect of the two other Regions which are hotter then it. And this coldneſſe happeneth partly through the cauſes before expreſſed, and partly by reaſon of the Aire in it which cannot follow the motion of the heavens, ſeeing it is hindred by the tops of the mountains. And hereupon it is that the Philoſophers make this a rule, ſaying that * *the farreneſſe from a circular motion gives quietneſſe, coldneſſe, & heavines; even as the nearnes gives motion, heat,*

* *Remotio à motu circulari dat quietem, frigiditatem, & gravitatem; propinquitas dat motum, calorem, & levitatem.*

heat, and lightneſſe: Which in this thing concerning the middle Region is found to be true, the Aire in it being cold, becauſe it is hindred from following the circular motion of the heavens. But (as I ſaid) it is not abſolutely cold, but reſpectively: For if it were extreme cold, then the heat of the Sunne would never paſſe through it to this Region here below; neither would there be graſſe, herbs, and ſuch high trees as are upon the tops of the mountains.

But to proceed; 1. In the higheſt Region, and oftimes above it, be generated Comets or Blazing ſtarres, and ſuch like fiery Meteors of divers ſorts. 2. In the middle Region, Clouds, Thunder, Rain, Winds, Storms. &c. 3. In the loweſt Region we have Dews, Miſts, Hoar-froſt, Ice and Froſt. As alſo here is your *Ignis fatuus*, or fooliſh fire, with other Lights burning about graves, or ſuch like fattie-places, where there is ſtore of clammie or fat oylie ſubſtance for their matter. Theſe Lights are ſeen alſo in fields, and are driven by a gentle wind to & fro untill their matter be conſumed.

Now theſe and every one of theſe, ſeeing they have their cauſes in nature, let us a little view them, both how and what they are: For they who ſend us to God, and his decree in nature, have indeed ſaid what is the true cauſe, but not how it is by naturall means effected. For the manner of producing theſe things doth no leſſe amplifie the power and providence of God, then the things themſelves when they are produced.

Sect. 2. Parag. 2.

Of Meteors, firſt in generall, then how they are divided in particular.

AND theſe things of which we now ſpeak, ſeen in any of the Regions, by a generall name are called *Meteors*

Meteors. And the matter of Meteors, as it is remote, is from the Elements; but as it is propinque or near, it conſiſteth of Exhalations.

Exhalations are of two kinds.

And Exhalations are of two kinds. 1. There is *Fumus.* 2. *Vapor.*

If it come from the earth or ſome ſandy place it is *Fumus*, a Fume or a kind of Smoke.

If it come from the water or ſome watry place, it is *Vapor.* For this is a rule, that *A Fume hath a certain earthly nature in it, & yet is not earth; & a Vapour hath a certain watry nature in it, and yet it is not water.* Or, if you had rather take it thus; *Fumus eſt mediæ naturæ inter terram & ignem: Vapor verò inter aquam & aërem:* That is, *A Fume is of a middle nature between earth & fire; but a Vapour is of a middle nature between water and aire.*

The nature of vapours.

And further, all vapours are warm and moiſt, and will eaſily be reſolved into water; much like the breath that proceedeth out of a mans mouth, or out of a pot of water ſtanding on the fire: and theſe are never drawn higher then the middle Region of the Aire; for there they are thickened and conglomerated by the cold into clouds.

Why vapours are warm.

And why vapours are warm, being drawn from that which is cold, is not from any internall propertie of their own, but they receive this qualitie from the power and influence of the ſtars. For after that the matter is by thē attenuated or made thin, their beams cannot but warm it, although it proceed from that which is cold.

The nature of fumes.

Again, all fumes are as ſmokes which be hot and dry; which becauſe they be thin and lighter then vapours, they often paſſe the loweſt and middle Regions of the Aire, being ſometimes carried even beyond the higheſt Region it ſelf.

And thus we ſee how there are two kinds of Exhalations;

Th' one ſomewhat hot, but heavy, moiſt and thick:
The other light, drie, burning, pure and quick.

Moreover, theſe Exhalations being the matter of Meteors (as hath been ſaid) are either from the Earth or Water. As for the Fire, and Aire, they are mixed with this matter, as with all other things, but not ſo abundantly that they may be ſaid to be the materiall cauſe of any Meteor, although without them none can be effected. And thus much generally. But now more particularly.

Three ſorts of Meteors.

And in coming to particulars, it may be found that theſe kind of Meteors, concerning which I ſpeak, are of three ſorts; either Fierie, Waterie or Aierie.

Fierie are of two ſorts: either ſuch as are in very deed fired; or elſe ſuch as onely ſeem to burn, which are therefore called *Phaſmata*: In which regard it may be ſaid that theſe Fierie ones are either Flames or Apparitions.

The ſorts of Fiery Meteors which burn in very deed.

And again in reſpect of their matter, if they be ſuch as burn in very deed, then they be either more or leſſe pure.

Their place where we ſee them is according to the abundance and ſcarcitie or rather qualitie of the matter whereof they conſiſt: for if it be heavie and groſſe, it cannot be carried high; but if it be not ſo groſſe, but rather light and more full of heat, then it aſpires and tranſcends, ſo much the higher by how much it is lighter; ſometimes above the higheſt Region of the Aire, even into the ſtarry heaven it ſelf; which is witneſſed by our beſt modern Aſtronomers, who have obſerved many Comets above the Moon.

Furthermore, theſe Fierie impreſſions, according to the diverſe diſpoſing of their matter, are of ſeverall faſhions; and thereupon they have ſeverall appellations, being called according unto the names of thoſe things unto which they ſeem to be like.

As 1. *Torches.*
2. *Burning Beams.*
3. *Round Pillars.*
4. *Pyramidall Pillars.*
5. *Burning Spears, Streams, or Darts.*
6. *Dancing or leaping Goats.*
7. *Flying Sparks.*
8. *Shooting Starres.*
9. *Flying Lances.*
10. *Fires, either scattered, or else as if all the aire burned.*
11. *Flying Dragons, or Fire-drakes.*
12. *Wandring Lights.*
13. And also *licking* or *cleaving fire,* sticking on the hairs of men or beasts.

These sorts are *ignis purus.*

Now all these kinds (of which I have mentioned thirteen) I take to be such fierie Meteors as are said to be pure and not mixt.

Then again have you those which are said to be mixt and lesse pure:

As 1. Comets of all sorts.
2. All kinds of lightening.
3. Unto which must be joyned thunder, as an adjunct.

These sorts are *ignis mixtus.*

And now of these severally, before I mention any more of another kind, whether waterie or aierie.

Sect. 2. Parag. 3.

Of such fierie Meteors as are pure and not mixt.

Article 1. Of burning Torches.

1. *Fax*, which is a *Torch* or *Fire-brand*, or as a lighted candle, is an exhalation hot and drie, drawn beyond the middle Region of the aire, where being arrived it is set on fire (as are all exhalations that come there) partly by their own heat, and partly by the heat of that place: and because the matter of the exhalation is long and not broad, and being equally compact, and fired at

the one end, it burneth like a torch or candle, untill the whole whereof it conſiſteth be conſumed. And why it ſhould burn at the one end rather then at the other, is found to be becauſe it is long and ſtandeth upright, having the moſt of its aſpiring matter in the top; and in this ſtation aſcending up, it comes to paſſe, that when the upper end doth preſent it ſelf to the heat of the upper Region, it is fired, and ſo conſumeth by degrees, even as by degrees it aſcendeth, or peepeth into that hot place.

Article 2. Of burning Beams.

2. *Trabs ardens, a burning Beam*, is an exhalation hot and drie, drawn beyond the middle Region of the aire; the matter of which exhalation being long and not very broad, makes it ſeem like a beam or logge: and becauſe it is more groſſe and heavie on the under part from the one end unto the other, and on the upper part hath much aſpiring matter equally diſperſed, it is tranſverſly carried up, and ſo being fired it lieth at length, and ſtandeth not upright.

Article 3. Of round burning Pillars.

3. *Round pillars* are of the ſame nature, unleſſe perhaps their light and heavie matter is not ſo equally or in like order diſpoſed, but rather heavier towards the one end then the other, which makes it be carried up or preſented in perpendicular faſhion; and alſo having the hotteſt and drieſt and moſt combuſtible matter driven to the ſuperficies or out-ſide of it, by reaſon of a contrary qualitied ſubſtance within it, which makes it therefore be fired on all ſides alike, and appear like a burning Pillar.

Article 4. Of Pyramidall burning Pillars.

4. *Pyramidall Pillars* are nothing differing from the other, unleſſe that the exhalation have more earthly matter in it below, and not ſo much above: for when the lighter and thinner parts are aſcended to the top, then the groſſer, heavier, and thicker are left in the bottome: which makes it therefore of faſhion great beneath and ſmall above.

Article 5. Of Flaſhings, Streams, or Darts

5. *Burning Streams, Spears*, or *Darts*, is that Meteor which

which is called *Bolis* or *Jaculum*, and is an Exhalation hot and drie, meanly long; whoſe thick and thinner parts are equally mixt: and thereupon being fired in the higheſt region, it flameth on the thin or ſubtil part; which nevertheleſſe, becauſe the matter is well mixed, doth alſo ſend fire to the other parts, inſomuch that it ſeems to runne like a dart from the one unto the other.

Or, if you will, this Meteor (or one very like it) is thus generated, viz. when a great quantitie of hot and drie Exhalations (which indeed may fitly be called a drie cloud) is ſet on fire in the midſt, and becauſe the cloud is not ſo compact that it ſhould ſuddenly rend, as when thunder is cauſed, the fire breaks out at the edges of it, kindling the thin Exhalations which ſhoot out in great number like to fierie ſpears or darts, the ſtreaming or flaſhing being ſo much the whiter by how much the Exhalation is the thinner. Such like coruſcations as theſe we uſe to ſee many nights in the North and North-eaſt parts of the skie.

Article 6. Dancing Goats.

6. *Capræ ſaltantes*, or *dancing Goats*, are cauſed when an Exhalation hot and drie is ſo compact, that on the one ſide or other it hath ſome parts which appear as the appendices of it, or joyned to the main Exhalation by an other kind of Exhalation farre thinner then the main one, ſo that the fire running on the main part, and as it were outright, by the way it cannot but ſeem to skip unto thoſe parts on the ſides, inflaming them alſo; which, becauſe it is variouſly and nimbly performed, makes the flame ſeem to leap or dance, juſt as wanton goats uſe to do when they are dancing or playing.

Article 7. Flying Sparks.

7. *Scintillæ volantes*, or *flying Sparks*, are cauſed when the matter of the Exhalation is not onely thin, but in all parts thin alike, but not compacted or knit together: and not being cloſely joyned, but interrupted by ſmall ſpaces, thoſe parts which come up firſt into the higheſt Re-

gion are fired before the other that follow, and thereupon they flie abroad like ſparks out of a chimney, even as when ſaw-duſt or any ſuch like matter is caſt into the fire. This Meteor by ſome is called *Stipula ardens*, or *Burning ſtubble*.

Article 8. Of Shooting ſtarres.

8. *Stellæ cadentes*, *Shooting* or *Falling ſtarres*, are cauſed when an Exhalation hot and drie is gathered as it were on a round heap, but not throughly compacted, nor yet ſo apt to aſcend as other Exhalations, which makes it therefore be beaten back again when it comes near the cold confines of the middle Region; and ſo, hovering aloft, by an* *Antiperiſtaſis*, or repulſion by the contrary to it on every part, it is ſet on fire, and then ſliding away, it appears as if a ſtarre fell down or were thrown to the earth.

For ſhooting ſtarres theſe ſome do fondly call;
As if thoſe heavenly lamps from heaven could fall.

Moreover, ſometimes it is generated after another manner, which is but in reſpect of the diſpoſing of the matter; and then the Exhalation is more long then narrow, which being kindled at the one end burneth ſwiftly to the other, even like a piece of waxed thread being lighted in a fire or candle.

Again, ſome think that this Meteor is not ſo much ſet on fire, as directly under ſome ſtarre or other which gives it a ſhining. But how this can be I cannot well perceive, ſeeing it ſhooteth obliquely as oft as directly downwards.

* *Antiperiſtaſis* is a repulſion on every part, whereby either heat or cold is made more ſtrong in it ſelf by reſtraining the contrary.

Article 9. Flying Lances.

9. *Lancea ardens* or *volans*, *A burning* or *flying Lance*, is another fiery Meteor kindled in like ſort that the former was, and hath this name becauſe the matter of it is ſo diſpoſed, that when it is fired it ſeems to be like a Lance.

Article 10 Of the ſeeming burning of the heavens.

10. *Illuminations*, or Fires ſcattered in the Aire, and appearing in the higheſt part of the loweſt Region, are cauſed

cauſed when very dry and hot Exhalations are drawn up, and meeting with cold clouds are ſent back again, which motions to and fro do ſet them on fire, and then their parts not being thick in equall proportion, but as it were unjoyned together do ſeem as though Fires were ſcattered in the Aire. Thus one way. But ſometimes the matter of this Exhalation is more nearly conjoyned, and then (if the Exhalation be large) it is as if the whole Aire were on fire, as appeared on the 15 day * of November in the yeare of our Lord God 1574; in which yeare about the laſt day of March the ſtrange ſtar in *Caſſiopea's* chair vaniſhed and diſappeared.

* Stow in his Abridg. Ann. 1574.

11. *Draco volans*, or *a flying Dragon*, called by ſome a *Fire-drake*, is a fierie Exhalation whoſe matter is thick and as it were hard tempered together; or rather not ſo hard as conglutinouſly conjoyned: which lump, aſcending to the Region of cold, is forcibly beaten down or back again: by the force of which motion it is ſet on fire; and not onely fired, but alſo bent and violently made crooked: For (as hath been ſaid) the matter of it hangeth ſo conglutinouſly together, that the repulſe divides it not, but by a ſtrange encounter moulds it into ſuch a faſhion as (ſeen afarre off) looks much like * a Dragon. This is the opinion of the moſt. But ſome ſay that it is done into this faſhion between two clouds of differing natures, the one hot, the other cold: and ſo perhaps it is ſometimes made.

Article 11. Fire-drakes, or flying Dragons.

* Paracelſus is perſwaded that it is a fierie living creature bred in the element of the Fire, even as flies in the Aire, fiſh in the Water and worms in the Earth: affirming that it is of a ſhort life like the Salamander, &c. But if this be not ridiculous, then nothing is.

12. *Ignis fatuus*, or *fooliſh Fire* (ſo called, not that it hurteth, but feareth or ſcareth fools) is a fat and oily Exhalation hot and drie (as all Exhalations are which are apt to be fired) and alſo heavie in regard of the glutinous matter whereof it conſiſteth: in which regard the cold of the night beats it back again when it ſtriveth to aſcend, through which ſtrife and toſſing it is fired, (for in this encounter it ſuffereth an *Antiperiſtaſis*) and being

Article 12. Fooliſh Fire, Jenny, or Will with a wiſp.

being fired it goeth to and fro according to the motion of the Aire in the ſilent night by gentle gales, not going alwayes directly upon one point, unleſſe the wind be more then ſuch a gale as is commonly called *Aura*: And note that if the wind be any thing big or blowing, then this Meteor cannot appear at all, becauſe the wind will diſperſe the matter of the Exhalation, not ſuffering it to be conjoyned.

Moreover, ſome think that it may be kindled of it ſelf, although it be not ſo moved as before: and this is performed by the active moving of the heat which is within it, as is ſeen in an heap of moiſt hay which will ſet it ſelf on fire.

These kinds of lights are often ſeen in Fennes and Moores, becauſe there is alwayes great ſtore of unctuous matter fit for ſuch purpoſes; as alſo where bloudie battells have been fought; and in* church-yards or places of common buriall, becauſe the carcaſes have both fatted and fitted the place for ſuch kind of oyly Exhalations. Wherefore the much terrified, ignorant, and ſuperſtitious people may ſee their own errours in that they have deemed theſe lights to be walking ſpirits; or (as the ſilly ones amongſt the Papiſts believe) they can be nothing elſe but the ſouls of ſuch as go to Purgatorie, and the like. In all which they are much deluded: For ſouls departed * cannot appear again; There is no ſuch thing of ordinarie courſe: *I ſhall go to him* (ſaith David) *but he ſhall not return to me.* And (ſaith Job) *He ſhall return no more to his houſe, neither ſhall his place know him any more.* Or (as it is in the Pſalmiſt) *Before I go hence and be no more ſeen.* So that if they walk, ſure it is inviſible, for (ſaith the Scripture) They ſhall be no more ſeen. But what need I urge that? For we ſee that they cannot at all return, but are * *ignorant of all things done under the ſunne;* & as it was with Dives and Lazarus, ſo

*Taken therefore (but falſely) for the ſouls of the departed: as you may ſee if you look but a little further.

* 2. Sam. 12. 23.

Job 7. 10. Pſal. 103. 15, 16. and Pſal. 39. 15.

* Eccles 9. 5, 6.

it

it is with every other Wherefore we may well ſay thus,

1. *If after death ſouls can appear,*
Why then did Dives crave,
That one his brethren word might bear
What pains the damned have?

2. *Or if there be* * *another room*
Which is not Heav'n or Hell,
How ſcap't the * *begger from the doom*
Of Purgatories cell?

3. *What ſhall become of Chriſts dear* * *bloud,*
If after death there be
A way to make our own works good,
And place the ſoul in glee?

* Eccles. 9. 10. Hoſ. 13. 14. John 17. 24.

* Luke 16. 22. and chap. 23. 43.

* 1. John 1. 7, 9.

Queſt. But, if theſe lights be not walking ſpirits, why is it that they lead men out of their way?

Anſw. They are no ſpirits, and yet lead out of the way, becauſe thoſe who ſee them are amazed, and look ſo earneſtly after them that they forget their way; and then being once out, they wander to and fro, not knowing whither, ſometimes to waters, pits, and other dangerous places; whereupon the next day they will undoubtedly tell you ſtrange tales (as one ſaith) how they were led up and down by a light, which (in their judgement) was nothing elſe but ſome devil or ſpirit in the likeneſſe of fire which fain would have hurt them. But of this enough: and know laſt of all, that if one be ſomething near theſe lights, and the night calm, then going from them they will follow us, becauſe there being no wind to hinder, we draw the Aire after us; or going towards them they go from us, becauſe we by our motion drive the Aire before us.

Moreover, when the like matter chanceth to be fired in ſome ſuch part of the Aire as is over the Sea, then theſe lights appear to marriners, and are called *Caſtor* and *Pollux*, if there be two at once; otherwiſe *Helena*, if

Of Helena, Caſtor and Pollux.

if there be but one: The reaſon of which names was this; *Helena* was the daughter of *Jupiter* & *Leda*, and by the heathens ſhe was taken for a goddeſſe, but not for a goddeſſe of good fortune: for this *Helena* was the cauſe of *Troyes* deſtruction; as thus. She was ſtollen away by *Paris* the ſonne of *Priamus* K. of the *Trojans*, ſtollen, I ſay, out of *Greece*; whereupon her two brothers *Caſtor* and *Pollux* ſayl to ſeek her, but they were never heard of more, or ſeen after: which loſſe of theſe brethren made it be ſuppoſed that they were tranſlated into the number of thoſe gods who uſe to give good ſucceſſe to mariners; for they were loſt at ſea; which is, as if they were tranſlated from thence. Now then the Seamen having ſeen by often experience that one light was to them a ſigne of ſome tempeſt, and that two lights were a ſigne of fair weather, they called the one light *Helena*, and the two lights they called *Caſtor* and *Pollux*.

Why two lights at once ſhew fair weather, and one light foul weather.

Queſt. But why ſhould it be, may ſome demand, that they ſhould thus appearing ſhew either fair or foul weather? can any reaſon be ſhown for it?

Anſw. It is anſwered, that one flame alone may be a ſigne of tempeſt or foul weather, becauſe, that as that matter which burneth is ſo compact into one that it cannot be diſſolved into two; ſo in like manner the matter of tempeſt being exhaled, by the like cauſe is kept from being diſſipated, and is ſo cloſe together that before any long time it muſt needs work.

And again, when two lights appear, why then it ſhould be fair, it is becauſe there is not the like working in nature which was before; but rather the contrary: for as this Exhalation of the lights is divided; ſo the matter, which otherwiſe might be fit for tempeſt, is not thickened, but by the like cauſe is alſo divided, ſcattered, and eaſily diſſolved; inſomuch that it cannot work ſo as at other times, when there is a working to compact, and not to diſſipate.

13. *Ignis*

13. *Ignis lambens* is a cleaving and licking fire or light; and is ſo called becauſe it uſeth to cleave and ſtick to the hairs of men or beaſts, not hurting them, but rather (as it were) gently-licking them. Theſe flames may be cauſed two wayes, as the learned write.

Article 13. Licking Lights

Firſt, when clammie Exhalations are ſcattered abroad in the aire in ſmall parts, and in the night are ſet on fire by an *Antiperiſtaſis*; ſothatwhen any ſhall either ride or walk in ſuch places as are apt to breed them, it is no wonder that they ſtick either on their horſes, or on themſelves.

Secondly, they may be cauſed another way, *viz.* when the bodies of men or beaſts, being chafed, do ſend out a fat and clammie ſweat; which (according to the working of nature in things of this kind) is kindled and appeareth like a flame. Virgil makes mention of ſuch a fire as this, upon the head of *Iulus* the ſonne *of Æneas*;

Ecce levis ſummo de vertice viſus Iuli
Fundere lumen apex, tactúque innoxia molli
Lambere flamma comas, & circum tempora paſci.

Virg. Æneid. lib. 2. prope finem.

Behold, the lively crown
Of ſoft Iulus head
With light was circled round:
A flame his temples fed.
But toucht, not having hurt, nor feeling harm,
The licking fire his hairs would ſcarcely warm.

Livie alſo maketh mention of two others upon whom the like Meteor appeared: For *Servius Tullius*, when he was a child, even as he lay ſleeping, had his hair on his head as if it were all on a fire. And upon the head of *Marius*, that worthy Romane, was the like appearance, even whileſt he was making an oration to his ſouldiers. And I my ſelf do alſo know one, who hath often proteſted to me, that as he lay in his bed one night, his head was all on a flame; which hurt him not, although it greatly

greatly ſcared his wife and him, as I have heard them both confeſſe. Moreover, others teſtifie how they have been ſcared in their beds by a kind of light ſticking to their coverings like dew upon the nap of a frieze coat: which muſt needs be this *Ignis Lambens*, cauſed by ſome kind of clammie ſweat proceeding from among them. For, that a clammie ſweat will cauſe theſe things, is manifeſt in the nimble currying of a foggie horſe; viſible ſparks appearing and coming from him, if it be done in the dark. But of theſe kinds of fierie Meteors enough.

Sect. 2. Parag. 4.

Of ſuch fierie Meteors as are impurely mixt.

Article 1. Of Comets.

Why ſome fierie Meteors are leſſe pure then others.

NOw follow thoſe which are *Ignita mixta*, and leſſe pure; coming ſo to paſſe when the Exhalation, through the admixtion of ſome vapour, is more ſlimie, groſſe, and impure: For thoſe Meteors already deſcribed were merely Fumes without the admixture of Vapours; unleſſe it might be ſome little in one of a glutinous nature or compoſition. Now theſe *Ignita mixta* are uſually divided into two ſorts: for they are either ſuch as continue long; or elſe ſuch as are but for a little while.

Thoſe that continue long, are Comets or blazing ſtarres.

What Comets are.

And a Comet is a fierie Meteor, whoſe matter is an Exhalation hot and drie, fat and clammie, drawn by vertue of the heavenly bodies into the higheſt part of the aire (and ſometimes into the ſtarrie Region) where it is cloſely conglutinated into a greet lump, by reaſon of ſupply that it hath from below, ſo long as there is a working to exhale it: and being thus compacted and exhaled, it is ſet on fire in convenient time by the exceſſive heat of the place where it reſteth. Sometimes it continues burning long;

long; ſometimes but a little while: ſeven dayes is the leaſt time; whereas ſome have been ſeen * ſix moneths: all which cometh to paſſe by reaſon, either of the paucitie, or plentie of the matter whereof it conſiſteth. That laſt Comet which was ſeen of us, viz. *Anno Domini* 1618, was perſpicuous by the ſpace of one moneth; namely from the 18 day of November untill the 16 day of December next following; and was farre above the higheſt Region of the aire, overlooking even the moon her ſelf, as *Longomontanus* proveth in a book of his, where he treateth of new ſtarres, and ſuch appearances as have been ſeen in the heavens, ſince the yeare of our Lord God 1572.

* Plinie maketh their ſhorteſt time to be ſeven dayes, and their longeſt 80 dayes, *lib.* 2. *cap.* 25. but we find it otherwiſe: And therefore there is a fault, 80 being put for 180, which might come to paſſe by the loſſe of a C.

But in a Comet two things eſpecially are conſiderable: the one the colour, the other the faſhion: both which ariſe out of the diverſe diſpoſing of the matter.

Their colours are principally three. 1. If the matter be thin, then the colour is white. 2. If meanly thick, then the colour is ruddie, looking like fire. 3. If very thick, then their colour is like the burning of brimſtone, or of a blew appearance.

Three principall colours in a Comet.

Yet know that they are not alwayes exactly of theſe three colours without any difference, but as near them as the diſpoſing of their matter will ſuffer: as in ſtead of white we ſometimes have them of a yellowiſh colour; in ſtead of blew, of a watchet or greeniſh colour, and the like.

Concerning their faſhions (if we ſtand upon a curious examination of them) they may be manifold: and yet, as *Ariſtotle* accounteth, they are principally but two, all their other ſhapes being dependant on theſe two. For firſt either they ſeem round, having beams round about them; which cometh to paſſe when the matter is thin on the edges, and thick every where elſe: or ſecondly, they ſeem as it were with a beard or tail; which cometh to paſſe

Two chief faſhions in a Comet.

paſſe when it is but meanly thick towards ſome one ſide or other, and rather long then round. But ſome would have theſe two faſhions to be three, becauſe the tail ſometimes hangs downward as well as ſidelong: and ſo there is by this means *ſtella crinita*, *ſtella caudata*, and *ſtella barbata*; concerning which I am not much ſolicitous.

The ſtrange effects of Comets.

That therefore which in theſe things I do much more wonder at, is the ſtrange and admired multitude of effects which are produced by them; as not onely change of aire but change of heirs alſo, proceeding from the diſturbance of ſtates, tranſlation of kingdomes, bloudy warres, and death of Potentates. Hiſtories have carefully recorded theſe things, and left them to the conſideration of after-times.

First therefore let it be obſerved, that when the kingdome of the Macedonians came to an end, in the laſt yeare of *Perſeus*, which was about the yeare 584 or 585 of the building of Rome, a * Comet appeared, as if it came to point out the laſt period of that kingdome.

* *Carion, ex Seneca, lib. 2.*

Secondly, when the Emperour *Jovian* attained to the Empire, ſucceeding the Apoſtate *Julian*, under whom the Church ſuffered much perſecution; when (I ſay) the ſaid *Jovian* was Emperour, and that under him both Church and Commonwealth were like to have had a * flouriſhing time (had he not been taken away by ſudden death) then alſo * appeared a Comet, ſhewing that further trouble was yet to be expected.

* *Socrat. lib. 4. cap. 22.*
* *Carion, lib. 3.*

Thirdly alſo, when a certain captain of the Goths, an Arian, named *Cajan*, had raiſed ſedition againſt the Emperour *Arcadius*, God ſhewed by manifeſt wonders that both *Arcadius* and his citie ſhould be well protected: but before this tumult (ſaith * *Carion*) a ſtrange Comet was ſeen, great and terrible, caſting flames down to the very earth; the like whereunto no man had ever ſeen before.

* *Lib. 3. pag. 294.*

4. And

4. And again, other Authours make mention of a ſtrange Comet ſeen in the yeare of Chriſt 410, being like unto a two-edged ſword, which protended many miſchiefs. For Rome was taken about the ſame time by *Alaricus* King of the Goths. Sundry calamities happened both in the Eaſt and Weſt; & ſo great ſlaughters of men were about thoſe dayes, as no age ever afforded the like. All *Europe* was in a manner undone; no ſmall part of *Aſia* was affrighted; and *Africa* alſo was not void of thoſe evils. Warre, Famine, Drought, and Peſtilence, all of them ſtrove (as it were) to trouble the whole world.

5. Alſo in theſe years, viz. 1400. 1401, * 1402, 1403. Comets appeared and great calamities followed; ſundry and unheard-of diſeaſes were felt, rivers dried up, and plagues were increaſed. *Tamerlain*, K. of the Scythians and Parthians, with an innumerable hoſt invadeth *Aſia*, calling himſelf the WRATH OF GOD, and DESOLATION OF THE EARTH; as did *Attilas*, of whom it is written, that he named himſelf THE SCOURGE OF GOD.

* Of this Comet you may reade in *Carion lib. 5. pag.* 854.

6. Alſo in the yeare 1529 appeared * foure Comets: and in the * yeare 1530. 1531. 1532, and 1533, were ſeen in each yeare one: (* *Lanquet* ſaith that there were three within the ſpace of two years) upon which, theſe and the like changes and calamities followed; (viz.) A great ſweating ſickneſſe in England, which took away whole Myriads of people. The * Turk, in the quarrell of *John Vvavoyda*, who laid claim to the crown of *Hungary*, entred the ſaid kingdome with two hundred and fiftie thouſand fighting ſouldiers; committing againſt the inhabitants thereof moſt harſh & unſpeakable murders, rapes, villanies, and cruelties. A great famine and dearth was alſo in *Venice* and the countrey thereabout, which ſwept away many for lack of ſuſtenance. The ſweating ſickneſſe

* *Aſſi. Chron. cometarum.*
* *Goclen. Phyſ. Lanquet. Chron. & in contin. Chron. Euſeb.*
* So alſo a certain Germane in the continuation of Euſeb. Chron.
* Buchol. in his chron.

sicknes * also vexed *Brabant*, & a great part of *Germanie*, and especially the citie *Antwerp*, where it consumed five hundred persons in the space of three dayes. Great warres concerning the Dukedome of *Millain* between the Emperour *Charles* the fifth, and *Francis* the French King. All *Lusitania* or *Portugall* was struck with an Earth-quake; insomuch that at *Ulisippo* or *Lisbon*, a * thousand & fiftie houses were thrown down, & 600 so shaken that they were ready to fall, which made the people forsake the citie and runne into the fields: and as for their churches, they lay upon the ground like heaps of stones. Upon this followed a great pestilence in those parts. But a little before, viz. in the yeare 1530, was a great deluge in *Brabant*, *Holland*, *Zeland*, and the sea-coasts of *Flanders*; as also an overflowing of the river *Tyber* at Rome, occasioned by unseasonable tempests of wind. Upon the neck of which troubles the Turk comes again into *Hungarie* & *Austria*; but he was beaten back, and a great company of his men slain and taken. Unto which may be added how the sect of the Anabaptists not long after brought new tumults into *Germanie*.

7. And for that last Comet, in the yeare 1618, saith a Germane writer, *Præsagium ipsius jam eheu est in manibus nostris*; meaning that they felt by dolefull experience the * sad events which followed after it.

Wherefore seeing these and the like accidents have been attendant upon the appearing of Comets, it may well be said that although they have their causes in nature, yet *Nunquam futilibus excanduit ignibus æther*; The skie never burnt with such fires in vain. For (as one saith) *Loquitur cum hominibus Deus, non modò linguâ humanâ, per Prophetas, Apostolos, & Pastores; sed nonnunquam etiam ipsis Elementis in formas & imagines diversas compositis:* That is, *God speaketh with men, not onely with the tongues of men, by Prophets,*

* *Idem. vid.*

* 1 Lanq. Chron it is 1400 *Vide Ann. Dom* 1531.

* *Bellum Bohemicum & Germanicum oritur, quod hodèque affligit patriam nostram Germaniam. Alsted. Chron. mirab. Dei. Fuit etiam antecessor mortis Matthiæ Imperatoris.*

phets, Apoſtles, and Teachers; but ſometimes alſo by the very Elements compoſed or wrought into divers forms and ſhapes; there being a Theologicall end of ſending Comets, as alſo a Naturall and Politicall end.

Why warres, deaths, famines and the like, are the effects of Comets.

But firſt (before I come to that) I think it not amiſſe to ſpeak ſomething concerning theſe their events & accidents; namely whether it can be ſhewed why they ſhould be wrought either ſo or ſo.

To which it is anſwered, that in ſome ſort we may give reaſons for this, and ſhew the cauſes of their ſignifications. For being Comets they conſiſt of many hot and drie Exhalations: And hot and drie Exhalations do not onely ſtirre up heat, drie and parch the aire, which may cauſe drought (eſpecially when much of the earths fatneſſe is drawn away with the Exhalation) and drought bring barrenneſſe: but alſo the bodies of living creatures upon the diſtemper of the aire are mainly hurt, ſuffering detriment in the conſumption of their radicall moiſture, & ſuffocation, through the poyſonous breathings which the bellows of the bodie ſuck in, and receive: inſomuch that there cannot but be ſickneſſes, plagues, and much mortalitie.

Beſides which, that they ſhould uſher in warres, ſeditions, changes of kingdomes, and the like, may alſo proceed from the ſame cauſe: For when the Aire is diſtemperately heated, then it is very apt ſo to diſorder and dry up the bloud in humane bodies, that thereby great ſtore of red and aduſt choler may be purchaſed; and this ſtirreth up to anger with the thought of many furious and violent actions; and ſo by conſequent to warre: and from warre cometh victorie, from victorie proceedeth change of commonwealths, and tranſlations of kingdomes, with change of Laws and Religion: for, *Novus Rex, nova Lex; New Lords, new Laws.* Unto which alſo may be added, that becauſe great perſonages live more

delicately then other men, and feed more daintily, having as many new fashions in their diets as in their clothes, for their boards as for their backs, that their bodies therefore are more subject to infection, and will take the poyson of an intemperate aire before more temperate livers; whereupon necessity inforceth that they die sooner in such a calamitie then other people, as he once witnessed that said, *Plures pereunt gulâ quàm gladio.*

Besides, the death of great ones is more remarkable then when inferiour persons die, so that if but some of them be taken away in common calamities, it is as if they were onely aimed at; because they are obvious to everie ones eye, as cities standing upon hills, which cannot be hid.

Our bodies follow the temper of the aire: and our minds do somewhat sympathize with the bodie.

And now that our bodies should follow the temperature of the Aire, is nothing doubted, seeing every lame, aking, or bruised joynt doth witnesse it even to the very ignorant: But that our minds and manners should follow the temperature of the bodie, is more strange and wonderfull. Yet true it is that by the mediation of humours and spirits, as also through ill-disposed organs, the mind also suffereth. For the bodie is *Domicilium animæ*, the souls house, abode and stay: so that as a Torch (saith * one) gives a better light, and a sweeter smell, according to the matter it is made of; in like manner doth our Soul perform all her actions, better or worse, as her organs are disposed: or as wine savours of the cask where it is kept, so the soul receives a tincture from the body, through which it works. For the Understanding is so tied to, and captivated by his inferiour sences, that without their help he cannot exercise his functions; and the Will being weakened so as she is, hath but a small power to restrain those outward parts, but suffers her self to be overruled by them: of which I shall have occasion to speak

* Burton, in his Melancholy.

ſpeak more in the * fourth dayes work, untill when I leave it; in the mean time adding, that Comets do not alwayes, when they bring ſickneſſes, corrupt the aire through immoderate heat and drineſſe, but ſometimes alſo through immoderate heat and moiſture; as alſo by immoderate winds, which may bring the poyſon of the Exhalation whereof the Comet conſiſted, unto ſome ſuch place as lieth obvious unto it, and the like. Yea and upon the raiſing of winds come often ſhowers and rains, or elſe overflowings of banks upon high tides and other loftie waters, which are forced over upon the violence of the winds.

* Chap. 7. ſect. 3. parag. 2. art. 1.

Aſtrologers ſay that Comets do moſt hurt either unto thoſe places to which they are verticall, or unto thoſe countreys which are ſubject to the ſigne wherein they are (for they maintain that ſuch and ſuch countreys are ſubject to ſuch and ſuch ſignes:) but omitting part of that, they alſo tell us (which ſtands with good reaſon) that in earthie drie ſignes they produce barrenneſſe by reaſon of drought; in wateriſh ſignes barrenneſſe alſo by reaſon of too much wet; in aierie ſignes extraordinary wind; in ſignes of a fierie triplicitie, extraordinary heat, warres, fires, drought, and the like; and in all of theſe (ſeeing their operation is extraordinary) ſome one perilous and infectious ſickneſſe or other.

How to gueſſe at the ſignification of Comets.

Beſides, they alſo * tell us that if a Comet be in faſhion like unto a ſword, it then ſignifieth warres and deſtruction of cities, &c. If it be *ſtella crinita*, or blazing round about, and of divers colours; then it ſignifieth wind, ſeditions, hereſies, and the like: but if it be blackiſh, with a ſhort tail, and no hairs; then it is a ſigne of barrenneſſe together with long and continued warres.

* *Origanus de eclipſibus*, pag. 526. *ex Cardan.*

But know now that although theſe and the like accidents be produced by Comets; yet if Comets ſhould not be, the caſe would be farre worſe for mankind, and more

readily would eager death ſeize upon him. For if that which is the matter of Comets were not taken into one place, and drawn, ſo as it is, up into the aire; it would kill us by being diſperſed about our dwellings: ſuch being the nature of their poiſonous fumes, as they by experience know who have ſeen the danger of damps whileſt they played the part of Pioners under ground.

The ſeverall ends of Comets.

Wherefore let me adde, that the end for which Comets are, is threefold: for either they appear for a Politicall end; for a Theologicall end; or for a Naturall end.

Politicall.

In reſpect of a Politicall end, they are ſo to be taken for the Heralds of future calamities, that men being forewarned may be forearmed, and provided either to ſhun the threatned diſaſter, or elſe to endure with patience the common and inevitable miſery.

Theologicall.

In reſpect of a Theologicall end, they are either a ſigne of calamities, or elſe the efficient cauſe of calamities. If they be a ſigne, then their end is this, *viz.* that they may be monitours, inſtigatours, and admoniſhers to repentance; and to deſire and expect either the turning away, or mitigation of thoſe publick puniſhments. But if they be the efficient cauſes of miſerie, then their Theologicall end is, that they are ſent as the inſtruments of puniſhing ſome ſuch enormous malice and contumacie of mankind as would not be kept under or reſtrained by any humane law or diſcipline.

Naturall.

And laſtly in reſpect of a Naturall end, it is that thoſe peſtiferous winds, ſpirits, or breathings, which are gathered from metallique liquours and the like in the earth, ſhould be taken up farre into the aire from the common ſeat of men, that thereby we may partake the leſſe of their malice: for being burnt out and conſumed there, they can leſſe hurt us, then if they were below. If they ſhould remain in the earth, they then (as they often do) would rend and ſhake it: or ſhould they remain

below

below in the near neighbouring aire, they would poiſon us * ſooner then above; becauſe if the aire be infected when they are on high and a great way from us, much more would it be infected ſhould they be below and round about us.

But of Comets I have ſaid enough. And now methinks I am led from them to a conſideration of ſuch appearances as are called New ſtarres; ſuch as were in the years * 1572, 1596, 1600, 1602, 1604, and 1612.

* Witneſſe the great plague which was in Portugall Ann. Dom. 1531, occaſioned by vapours which through a breach of ground in an earthquake iſſued forth & poiſoned the aire. Lang. Chron.

* After which were theſe appearances, if not new ſtarres, yet moſt of them ſupralunary Comets: as in the yeare 1577. which Sybilla Babylonica prophecied of (as may be ſeen in Tycho) ſhewing that it ſhould ariſe about foure years after the vaniſhing of Coſſiopeas ſtarre; which was true inclusively: and in the years 1580, 1585, 1590, 1593, and in the yeare 1596 (but this was a New ſtar) and in the years 1607, and 1618.

Artic. 2.

Of new ſtarres, and eſpecially of that wich was in the Conſtellation of Caſſiopea, Anno Dom. 1572.

NOw here I muſt confeſſe that I know not vvhat to write: for how they are generated, or what they ſignifie, is a matter of moſt intricate queſtion.

Noble *Tycho*, that Phenix of Aſtronomie, and after him *Longomontanus*, with certain others, have been perſwaded that they were more then Comets, and generated farre otherwiſe, or of other matter then fierie Meteors are; being firſt ſet awork ſo to think by the ſight of that ſtrange and admirable New ſtarre which was ſeen in the conſtellation of *Caſſiopea*; ſeen from the ninth of November in the yeare 1572, untill the laſt of March in the yeare 1574.

Which ſtarre was indeed truly admirable, and (as I may ſay) attended with a ſad event; I mean that cunningly plotted Maſſacre of Proteſtants in *France*, at the ſolemnization of a marriage between *Henry* of *Navarre* cheif of the Proteſtants partie; and lady *Margaret*, ſiſter to the French King *Charles* the ninth, then reigning, and cheif authour of the foreſaid Maſſacre: at which wedding there was not ſo much wine drunk as bloud ſhed; thirtie thouſand Proteſtants and upwards, of the beſt and moſt potent, being ſent through this Red ſea to the land of Canaan.

Or if this New ſtarre were not attended with that particular accident, becauſe the * Maſſacre was in Auguſt, and the ſtarre appeared not untill * two moneths after; yet we may hope, that riſing after ſuch a butcherie, and ſo ſoon after it as it did, that therefore it came to animate diſtreſſed Chriſtians, ſhining at the firſt with a cheerfull countenanee, but at the laſt turning into a martiall and bloudie hue: as if in ſo doing, he which ſent it would have the world take notice that his righteous ſervants ſhould ſee truths enemies (be they where or whom they will) confounded at laſt by martiall diſcipline; and that thoſe who had made havock of others ſhould be troden down at laſt themſelves, although for a time they fairly bore it out.

* *Vid.* on Bartholomew day. Calvif.
* *Vid.* on the ninth of November.

But by what inſtruments the execution of theſe projects ſhould be performed, we cannot tell. Yet this I verily think may be ſaid, that thoſe late, bleſſed, and admired proceedings of the proſperous and ſucceſſefull GUSTAVUS ADOLPHUS King of *Sweden*, whoſe manifold and ſudden conqueſts made him a ſpectacle to the aſtoniſhed world, that thoſe (I ſay) do point us to him above all men, as being the man appointed to ſhew the firſt effects of that ſtrange ſtarre; and that it was to have an operation farre ſurpaſſing the ſaddeſt conſequents of former threatning Comets.

To which purpoſe I find, that learned *Tycho* hath added a kind of propheticall concluſion to that book of his which he wrote concerning this New ſtarre; wherein he declareth (according to his modeſt and harmleſſe rules of art, proceeding in them not like a doting heatheniſh ſtarre-gazer) that the effects were to be declared by * ſucceeding events: which as they ſhall not begin (ſaith he) untill ſome years after the apparition, ſo they ſhall continue for a long time afterward. The beginning of the effect, or ſome part of it, was to fall out after

* And therefore he could not then name any one in particular.

after the third ſeptenarie of years from the firſt appearing of the ſtarre (as he alſo writeth which was after one and twentie years; about which time I plainly find that the foreſaid * King was born: For the time of his birth falleth into the yeare 1594. which is the very next yeare after the one and twentieth yeare from the ſtarres firſt riſing; ſo that the yeare of his conception falleth into the very one and twentieth yeare it ſelf: or, if you account incluſively from the yeare of the ſtarres vaniſhing, unto the yeare of the King of *Swedens* appearing, or entrance into the world, then not his conception, but his birth, falleth into the ſaid one and twentieth yeare. Which thing is alſo ſomewhat agreeable to *Tycho* his own meaning, where he telleth us (although he nameth no particular perſon) that thoſe noble Heroes which ſhall happen to be born at the firſt riſing of this ſtarre, are ordained to be the authours and atchievers of ſuch great mutations as ſhould then be, when the men ordained for them came to be fit, and of ripe age to work them. Thus he; the difference between us being, that he applyeth it to the birth of ſuch eminent men as were to be born when the ſtarre firſt appeared; and I to that time when (according to his conjectures) the operation of it firſt began: which, albeit he caſteth it into the yeare 1592, muſt not be untill the yeare after, being the one and twentieth yeare from the ſtarres firſt riſing, and the very yeare of the King of *Swedens* conception: For he was born on the laſt day of November in the yeare 1594; being alſo (as hath been ſaid, both terms included) the very one and twentieth yeare from the ſtarres firſt vaniſhing.

* The King of *Swedens* born at ſuch time as the ſtarre began its operation.

Neither doth the time of his birth fall out thus fitly, but the place likewiſe, which was to be the ominousneſt concerning the occaſion, or bringing forth of one, for the authour or beginning of the intended alterations, is pointed

The place pointed at by the heavens hath 62 degrees of North latitude.

pointed at by the heavens to be ſuch a place as hath for its latitude about 62 degrees from the Equator northwards; for in that parallel the ſtarre moved day by day, and was verticall once every day to *Norvegia*, *Swedia*, *Finlandia*, *Livonia*, *Moſcovie*, and *Tartarie*, with all ſuch places as lie under the ſame parallel.

Now though the ſtarre in his daily motion was in this manner verticall to more places ſucceſſively then to the King of *Swedens* dominions; yet at the time of the next new Moon (which *Tycho* maketh a rule concerning the place, from whence either the occaſion, or authours of the great changes ſhould proceed) it was juſt over the Meridian of *Finland*, being verticall to that countrey: And who but the foreſaid GUSTAVUS ADOLPHUS King of *Sweden* hath the countrey of *Finland* as a part of his dominions? For he is not onely King of the *Sweds*, *Goths*, and *Vandals*; but alſo great Prince of *Finland*.

Tycho, I confeſſe, doth not directly name the countrey of *Finland*, but choſe rather to expreſſe the place by calling it *Moſcovia*, or *Ruſſia*, bordering upon *Finland*: wherein I find (according to the obſervations of a learned and great Divine) that he was ſomething miſtaken. For in a book lately ſet forth, and intituled *The new ſtarre of the North*, the ſaid Authour, having made ſome obſervations from *Tycho's* writings concerning that ſtarre, and applied them unto theſe times, doth manifeſtly prove that it ought rather to be *Finland* bordering upon *Ruſſia*, then *Ruſſia* or *Moſcovia* upon *Finland*: withall, amongſt other reaſons which ſhould make *Tycho* chooſe that place, rendring this for one, that perhaps he was loth to bring the prediction too near home, ſeeing there often happened divers diſtaſtes and quarrels between his Sovereigne the King of *Denmark*, and the neighbouring King of *Sweden*: Which, upon this

this ground may the better be granted, *viz.* becauſe *Tycho* was once fain to hide his head for denoting in too direct terms a prediction too near his own home, although it afterwards proved true. But I referre you to the book, and proceed.

And novv vve ſhall ſee, that not onely the time of his birth and place pointed at by the heavens, but the chief time alſo vvhen the ſtarres influence ſhould be moſt perceived, doth point at him. For *Tycho* vvitneſſeth that about the yeare 1632 (if not alſo a fevv years after) the chiefeſt force and influence of this ſtrange ſtarre ſhould ſhevv it ſelf, the greateſt ſignifications depending upon the Trigonall revolution and tranſmutation of the Planets: vvhich force and influence, vvhy he referreth it to thoſe times, I leave to the admired perfection of his art, vvherein he vvas a kind of Phenix, and ſcarce hath left his parallel. For vvill you heare King JAMES of bleſſed memorie, and our late learned Sovereigne ſpeak for him? his commendations then vvill ſurely be no leſſe. For in certain verſes (as being able to judge both of him and his treatiſes) he approves his labours, and commends his skill as ſuperexcellent. The like alſo he doth in an Epiſtle vvhich he vvrote unto him: ſome of vvhich verſes, as I find them Engliſhed, are to this effect,

Great Tycho's *labours alſo do fore-ſhow*
Events, which ſhall befall on earth below;
And by diſaſterous or fair Aſpects,
What deſtinies on kingdomes God directs.

Novv then, if the chief effects ſhall demonſtrate themſelves about the yeare 1632, queſtionleſſe the King of *Sweden* muſt not be baulked in his late proceedings, but taken as a prime man upon vvhom the beams of this Nevv ſtar hath ſhined: for his great famous victories, & never e-enough admired conqueſts in *Germanie* (that *Sedes belli*) atchieved in ſo ſhort a time, have vvitneſſed as much.

Nay,

Nay, vvhen I heare himſelf ſpeak to his ſouldiers, and thoſe citizens vvhere he conquered, I am confirmed. For ſpeaking to the men of *Norimberg*, thus he ſaith: *Truly God hath marvelouſly preſerved you, as he hath alſo pleaſed to call me to this work. For I had rather thought that the laſt day of judgement ſhould come, then that I ſhould come into* Norimberg, *and (as you ſaid y our ſelves) leave ſo farre behind me mine own dominions, good ſubjects, and what elſe there is loving and dear unto me; and to bring along with me ſo many brave worthies, to expoſe their lives (as I do mine own) for the reſtitution, ſafetie, and preſervation of the common Evangelicall cauſe and liberty of* Germany. And again, to thoſe of his Court before *Ingolſtadt*, amongſt other things, he addeth this; *I know* (ſaith he) *that the good ſucceſſe, which it hath pleaſed God to afford me in my enterpriſes, hath made ſome to be envious, who labour to perſwade the ſimple that I endeavour nothing more then mine own gain, and the robbing and ſpoiling of others. But I call to witneſſe in this caſe the Princes who were thus ſpoiled, which I have again eſtabliſhed in their own right and eſtates; as alſo the creditours of whom I have borrowed ſuch extraordinary ſummes of money, both at* Frankford *and elſwhere, and the dangers which I do daily expoſe my ſelf unto: I call all theſe to witneſſe, whether I have left mine own kingdome & the deareſt I have in the world, to any other end, and with other intention, but onely to deſtroy the tyranny of the houſe of* Auſtria, *and to obtain a profound and ſettled peace unto all.*

Theſe words of his ſhew nothing leſſe then that he vvas extraordinarily ſet on vvork to undergo ſuch fortunes as the eyes of all the vvorld have bravely ſeen him ſtruggle vvith: & God knovvs vvho ſhall end that vvhich his coming into *Germanie* hath begun. It vvas his ovvn ſaying, that if he himſelf ſhould not ſurvive ſo long

as

as to bring to paſſe ſo great a vvork, that then in his ſtead ſome other might ſucceed and go on, untill a full point and period vvere put unto the vvarre. For upon the occaſion of his deliverance from a cannon ſhot, he utters theſe vvords; ſaying, that he vvas not onely mortall, but ſubject alſo unto the very ſame accidents that the pooreſt and meaneſt ſouldier is ſubject unto. *It is a generall law,* (*ſaith he) *from which my crown, my birth, my victories, are not able to reſcue & exempt me. There remaineth nothing elſe therefore, but that I muſt reſigne my ſelf to the providence of the Almighty, who (if it pleaſe him to call me out of this world) will nevertheleſſe not abandon and leave a cauſe ſo juſt as that which I have undertaken; but will doubtleſſe raiſe up ſome other, more wiſe, more courageous and valiant then my ſelf, who ſhall put a period to this warre.*

* In a ſpeech to his court at Ingolſtadt.

And again it vvas but three dayes before his death, that at *Naumbourg* he uttered theſe vvords; *Our affairs* (*ſaith he) *anſwer our deſires; but I doubt God will punish me for the folly of the people, who attribute too much unto me, & eſteem me as it were their God: & therefore he will make them ſhortly know & ſee I am but a man. He be my witneſſe, it is a thing diſtaſtfull unto me: And what ever befall me, I ſhall receive it as proceeding from his divine will. Onely in this I reſt fully ſatisfied, that he will not leave this great enterpriſe of mine imperfect.*

* Taken out of the relation of his laſt battel, pag. 20. tranſlated out of French into Engliſh.

Great King of Hearts, in arms tranſcending fame!
Eternall praiſe ſhall blazon forth thy name.
Soul of thy friends thou wert;
But terrour ſcourge of foes.
Canſt thou then die, though death
Thine eyes in ſpight may cloſe?
No no: For times unborn ſhall yet repeat
What deeds were done by thee a King ſo great.
And this doth alſo raiſe thy juſt renown.
That in thy fall thine enemies fell down. *Thine*

A memento for after-times.

Thine was that day: thy men undaunted fought
Untill their foes the field were driven out:
For as it were from forth their Kings laſt bloud
The palm and bay ſprung up, and conqu'ring ſtood.
Great deeds thou diddeſt ſoon: hot Mars his ſphere
In Germanie thee mov'd a double yeare:
From whence at laſt above the ſpheres he caught thee,
And to a place of peace eternall brought thee:
Where thou ſhalt reſt, how e're the reſt proceed
With thoſe fierce wars which heav'n hath thus decreed

But let me novv return again to this Nevv ſtarre, and ſhew you that in the dayes of *Hipparchus*,* who lived to-vvards the end of the Grecian Monarchy, there appeared one much like it: and ſo * *Plinie* telleth us. But ſince that time vve reade of no other untill this in the yeare 1572, excepting that vvhich appeared at our Saviours birth, vvhich indeed vvas no ſuch ſtarre: for it had three properties* never ſeen in any elſe; moving firſt from the North to the South; ſecondly, it vvas ſeated in the lovveſt Region of the aire; thirdly, it vvas nothing hindred by the light of the ſunne, &c. Yet in later times, followving the ſaid yeare 1572, ſome ſmaller ones have been: as in the yeare 1596; this vvas ſeated in the *Whale*. And in the yeare 1600, or thereabouts, another vvas ſeen in the conſtellation of *Cygnus*. *Kepler* makes mention of one in the yeare 1602, in the conſtellation of *Piſces*; ſoon after vvhich upon the death of Q. *Elizabeth*, and coming in of K. *James*, vvas that great plague at London. Some ſay that *Andromeda's* girdle & the conſtellation of *Antoninus* afforded each of them one, in the yeare 1612. But the yeare 1604 muſt not be forgotten; for in the* 16 degree and 40 minute of Sagitarius tovvard the Southvveſt a remarkable one appeared, having 2 degrees and 15 minutes of North latitude, & vvas ſeated in the conſtellation of *Ophiucus*: this at the firſt ſhined as bright as Venus;

* He flouriſhed 135 years before Chriſts birth. *Helvic. Chronol. in Lib. 2.*

* See more in Aquinas ſummes.

* Some ſay the 17 degree. *Calviſ. Chron.*

Venus; and in the very next yeare that damnable povvder plot of the Papiſts vvas diſcovered.

But novv, though theſe and more vvere reckoned up, yet that in *Caſſiopea* vvould be the chief, the elder brother, and captain of them all; becauſe both in height, bigneſſe, and luſtre, they vvere leſſe remarkable.

A conſideration of this New ſtarres matter.

Tycho, upon the ſight of this Nevv ſtarre, laboureth to prove that the heavens, and not the earth, afford matter to ſuch as theſe are; thinking that it differeth not from the matter of other ſtarres, unleſſe in this, *viz.* that it is not exalted to ſuch a perfection and ſolid compoſition of the parts as in the firſt continuing and created ſtarres; the main and principall reaſon being taken from the magnitude of them, together vvith their extraordinary height. As for example; * *Tycho* affirmeth concerning that Nevv ſtarre in *Caſſiopea* (being as it vvere the elder brother of all the other after it) that it vvas 300 times * bigger then the earth. Which being ſo, it is vvith ſmall probabilitie affirmed that it ſhould have matter from that vvhich is ſo much leſſe then it: and indeed a thing impoſſible. The heavens are large enough to afford matter, although the earth be not: and no part of the heaven can be imagined to be more fit for ſuch a purpoſe then the *via lactea*, or *milkie way*; for that place alvvayes ſhevvs it ſelf, even to the eye, ſo as if there vvere much indigeſted matter in it, reſerved onely to vvork ſuch vvonders.

* *Lib. de nova ſtella.*

* Yet the ſame matter had it been cruſhed together, or as ſolidly compoſed as the earth, would have been as nothing in reſpect of the earth.

Yet nevertheleſſe I ſuppoſe it may be alſo granted, that an earthly Exhalation may have recourſe ſometimes unto the battlements of heaven, and in ſome ſort and in part concurre tovvards the compoſition of theſe Nevv ſtarres (as they are called) and of ſuch Comets as have been above the Moon. What ſhould vve think of that laſt, in the yeare 1618? it vvas (as I have already ſaid) amongſt the vvandring ſtars themſelves; and yet it vvas no

* *Longomont. de noviscah Phanom.*

no other then ſuch a ſtarre as we call a Comet or a Blazing ſtarre. Now then, if this had matter from the earth, and ſpent it amongſt the Planets, rather then below the Moon; why might not thoſe which we call New ſtarres obtain the like freedome to have the like matter aſcend a little higher? What ſhould hinder this conjecture I do not eaſily ſee: for queſtionleſſe the ſame power remains ſtill in the ſtarres to exhale the matter as well after it comes into the higheſt Region of the aire, as before it came there; neither need we then imagine an abatement of their exhaling virtue.

Object. 1. But perhaps it may be thought that the nature of the place above the Moon doth ſufficiently denie the aſcent of any terrene Exhalation ſo high; there being too great a difference between the one and the other; between the matter aſcending, and the matter of that place whither it aſcendeth.

Anſw. To which I may partly anſwer as before, in the 4. Chapter and 3. Section, that ſeeing the out-ſpread Firmament in the creation was taken from that maſſe of matter which lay here below, and ſeparated from it rather then created of any newer matter, that therefore (I ſay) there cannot be ſo great a difference as to bring in ſuch an antipathie as will not at all ſuffer any terrene Exhalation to ſcale thoſe *flammantia mœnia mundi*, or battlements of heaven; but rather, that without reluctancie, or any great ſtriving, the one may admit of the other, and entertain it as a gueſt near of kin unto it ſelf, or unto the nature of that place where the continuing ſtarres have ever had their reſidence.

From the earth to the higheſt Firmament is nothing but aire.

For, if I urge it further, it may well be proved even by opticall demonſtration, that the great vaſt ſpace from the earth, as high as the fixed ſtarres themſelves, is not of a diverſe nature from the Aire; for if it were, then there would be a multitude of Mediums between the ſight and the

the thing viſible: but there is no multitude of Mediums: For where there is a multitude of Mediums, there the beams which come to the ſight from the thing viſible would beget a multiplicitie of refraction in the ſaid raies or beams; but it is manifeſt that there is onely one refraction found in the beams of the ſtarres, and that but onely when they are near to the edge of the Horizon, at which time the aſcending vapours are between our ſight and them: And therefore there is but one kind of Medium by which the ſtarres offer themſelves to our ſight: And being but one Medium, there cannot be ſuch diverſitie of natures between the heavens and things compounded of the elements. Whereupon it may be concluded, that an Exhalation may aſcend into the territories of the ſtarrie heaven, and ſo by conſequent have a mutuall concurrence with ſuch matter as the heavens do naturally afford towards the generating of ſupralunary Comets, or new-admired Starres.

Indeed I muſt confeſſe that were I of *Pythagoras* his opinion, I then would cry out with *Auditus* in the *Comedie-----*Heark, heark, liſt, liſt now, &c.* What, are you deaf, do you not perceive the wondrous ſound and the celeſtiall muſick the heavenly orbs do make with their continuall motion? Or I would imagine firm ſpheres or ſolid orbs, and ſo ſet an undoubted ſtoppage, and hinder the paſſage of any Meteor above the Moon: But ſeeing that tenet is made the fit ſubject of laughter, I therefore paſſe it over.

* Called *Lingua.*

Object. 2. But may not the Element of Fire ſtand in the way, and ſo conſume ſuch matter as aſcendeth, before it come beyond the Moon?

Anſw. To which it is anſwered, that the chiefeſt cauſe why men have been perſwaded to think that Fire is generated immediately under * the ſpheres, and that within the concave, of the Moons orb, the ſaid Fire, as it is there

* *In concavo* Lunæ *generatur ignis.*

there generated, hath there its place of reſidence, is for no other reaſon but becauſe of an imagined attrition of the ſpheres and orbs: Which ſeeing they are taken away, and that all is filled with Aire, the Elementarie fire is not hindred from aſcending, but may have a more loftie ſtation. For, queſtionleſſe, this kind of fire, as it is not viſible to the ſight, ſo neither may it be thought any other thing then the more ſubtill, light, and hot part of the Aire; in which regard it muſt needs be both in and of that part, which is neareſt to the higheſt heavens: For both the motion of the heavens is there moſt ſwift; and alſo, there is the greateſt neighbourhood to that infinite number of ſtarres fixed in the heavens.

What place the Element of Fire poſſeſſeth

An earthly Exhalation may therefore climbe above the Moon, and yet not runne through a fiery purgatory, or be conſumed by the way.

Mr. *Lydiat* our countreyman, his opinion is, that if we conſider of this Element, not as it is abſolutely pure, then the greateſt part of it is in the ſtarres (of which ſee more in the fourth daye's work) and ſome alſo is under ground, as being there a great cauſe of generating metals; occaſioning the burning and breaking out of ſundry ſulfurous hills, and the like.

But of this enough. And in the conſideration of it I have made way (you ſee) for the admittance of terrene Exhalations to joyn their forces towards the effecting of ſupralunarie Comets, or new and ſtrange admired ſtarres. This, I ſay, I have proved as a thing both poſſible, and not unlike. But that they do alwayes therefore thus concurre, I am not certain; neither will I ſtand curiouſly to decide it.

Let therefore learned *Tycho* his tenent go for currant concerning *Caſſiopea's* ſtarre, that the heavens onely were the materiall parents of it, and eſpecially the *Galaxia*, or white milkie way; unto the edge of which place (whileſt

(whileſt it appeared) it was ſituated, and continued viſible in the ſame, for the ſpace of 19 moneths, or thereabouts.

And thus I conclude, adding herewithall concerning other Comets whoſe ſtation hath been ſupralunarie, and time of continuance any thing long that if in them there could be any right to challenge a portion out of the ſame ſtorehouſe, then queſtionleſſe they were tyed to reſt beholding both to the heavens, and alſo to the earth, for the matter of their compoſure. But for ordinary Comets the caſe muſt needs be otherwiſe, ſeeing their place and ſmall continuing time confirm it.

Theſe things for mine own part I think more probable then if I ſhould affirm that the Planets afforded certain Exhalations, which by force of the Sunne are expired and exhaled from them, and being exhaled are made the matter of all kind of Comets above the Moon; yea and New ſtarres alſo(as ſome affirm)conſiſt of no other cauſes: wherein they diſſent from *Tycho*, thinking (contrary to him)that the *Galaxia* affords no matter toward the compoſure of theſe appearances.For(as * *Fromondus*, a late writer, affirmeth) *Simon Marius* beheld a new ſtarre in the yeare 1612, in *Andromeda's* girdle; and one *Juſtus Prygius* beheld another in the conſtellation of *Antoninus*; *Kepler*, in the yeare 1602,ſaw one in the conſtellation of *Piſces*;& *David Fabricius*,in the yeare 1596, ſaw another in the *Whale*; all of them farre enough diſtant from the *Galaxia* or milkie way.

* Lib. 3. Meteor. 2. Art. 7.

But ſuppoſe all this;muſt the continuing ſtarres therefore needs be forced to waſte their own bodies, and ſpend themſelves in teeming ſuch ample portions of matter as are required for glittering Comets, or New ſtrange ſhining ſtarres?Surely if they ſhould ſuffer their bodies to be thus exhaled, they could not chooſe but fall into a deep conſumption,and be viſibly diſproportioned

in their ſhapes and figures, farre otherwiſe then we ſee them: For it is a long time ſince the world began, and no few Comets have had their ſeats above the Moon, where they all cry out againſt an opinion ſo improbable, ſhewing that the changes would be ſuch as would be apparent and viſible enough to every vulgar eye.

Beſides, it cannot but be granted, that for ordinary Meteors every ſtarre and Planet hath an exhaling virtue as well as the Sunne: why therefore ſhould they now deſiſt and leave it all to him, who, if he may have this libertie, will at the laſt ſuck them all to nothing? Theſe men may well imagine (as they do) mountains in the Moon, with woods and groves, ſeas and rivers; and make every Planet another world: but yet 'twere good they knew that God made all but one, although the parts be two; & that Adam being caſt out of Paradiſe was ſent to till the ground and labour the earth, which he ſought, not with the man in the Moon; for he knew that that was not to bud forth with fruit, bear trees, and the like, becauſe it had another office. For *Let the earth* (ſaith the Almightie) *bring forth graſſe, herb, fruit, trees, &c. but let there be lights in the Firmament: the greater light to rule the day, and the leſſer light to rule the night.*

Alſo, if the Sunne ſhould work thus among the ſtarres, and that there ſhould be vapours exhaled from their bodies, how comes it to paſſe that we perceive no clouds in the Ethereall vault, and that we cannot ſee them glide between ſtarre and ſtarre, flying upon the wings of ſuch winds as muſt neceſſarily upon the admittance of this tenet be generated there? Perhaps they will anſwer that theſe things may be, and we not ſee them, by reaſon of the great diſtance between us and them. Well, be it ſo; yet know, that although we could not ſee them, we ſhould ſometimes feel them, and perceive our mother earth to be watered with ſhowers of rain, when we

ſee

ſee nothing but a clear skie over us. But it may be they again will anſwer, that the ſtarres do not frequently afford ſuch Vapours and Exhalations, but ſometimes onely: and then, if they be not copious enough to make ſuch a cloud as may ſhine like a Comet or blazing ſtarre, they are rather diſperſed into nothing, then turned into rain: for their matter is too hot and drie to make a rainie cloud. In good time. The ſtarres do not frequently afford ſuch Exhalations; and why ſo I pray? ſurely the ſunne is never ſo farre diſtant from ſome one Planet or other, but that he would make this his operation appear, if he had at all any ſuch working, or power of exhaling matter from them; and, if not a waterie, yet a drie cloud might be viſible. The ſtarres ſurely are of ſuch a nature that they be rather fed and nouriſhed by vapours, then compelled to ſuffer an unwilling waſting cauſed by an exhaling virtue, which is improperly given onely to the Sunne, becauſe onely to him: and from whence theſe vapours come, which upon all likelihood do continually nouriſh the ſtarres, ſhall be ſhewed in the fourth dayes work.

Neither do ſome exempt the Sunne from theſe evaporations, but affirm that day and night he alſo expireth vapours from him: which others again denie, becauſe they imagine that this publick lamp of the world ought to be more immortall, leſt being extinct, he ſhould be quite without light, and afford the world nothing but black and diſmall darkneſſe.

That therefore which before I affirmed, joyning in part with *Tycho*, who fetcheth matter from the *Galaxia*, ſeems to me farre more probable concerning the generation of theſe appearances. For firſt, the *Galaxia* doth ſenſibly appear as if it were an ample ſtorehouſe, and had large portions of matter, reſerved onely for ſuch purpoſes; which, when there is a working in nature apt

and convenient to produce it, is liberally afforded, and ſent thither where the moſt power is to attract it. And ſecondly, that an earthie Exhalation may ſometimes be admitted to joyn with the aboveſaid matter, this ſeems to me a reaſon, becauſe, like other low and ordinary Meteors, theſe alſo ſhew themſelves or firſt begin to ſhine in the Autumnall ſeaſon, and not in the Spring, Summer, or Winter Quarter.

Article 3. *Of Thunder and Lightnings.*

NOw it followeth that I ſpeak of ſuch fierie mixt Meteors as are of leſſe continuance then Comets or blazing ſtarres: and by their generall names they are called Thunder, and Lightnings.

Concerning the firſt, which is Thunder, it is not properly any kind of Meteor, but rather an adjunct or depending effect.

What thunder is

For Thunder is nothing elſe but a ſound heard out of a thick or cloſe compacted cloud: which ſound is * procured by reaſon of hot and drie Exhalations ſhut within the cloud, which, ſeeking to get out, with great violence do knock and rend the cloud; from whence proceeds that rumbling noiſe which we call Thunder. For when an Exhalation which is more hot then ordinary, meets with cold and moiſt vapours in the middle Region of the aire, and are incloſed all together in an hollow cloud, it cannot but be that they fall at variance; and by this ſtrife being driven together, the Exhalation is made ſtronger: and either by the motion, or by an *Antiperiſtaſis*, it is ſet on fire; which violently breaking the clouds whileſt it ſeeks for libertie, gives an horrid ſound. A ſimilitude may be taken from a cheſt-nut, apple, or egge breaking in the fire; or from the cracking of moiſt wood, or any ſuch like thing: for this is apparent, that when any incloſed hot wind is holden and withholden ſo as it

* *Joannes Bodinus putat à geniis aeris & dæmonibus ſemper fulmini jaci, & tumultum illum cæli cavi.*

it can have no vent, it will then ſeek it ſelf a way by breaking the skin, ſhell, or caſe; and in the breaking, ſeeing it is with violence, it muſt of neceſſitie make a noiſe. And thus it is in thunder.

But obſerve, that in thunder the noiſe made is not alwayes of a like ſound: for in reſpect of the hollowneſſe, thickneſſe, or thinneſſe of the cloud, and ſmall or great force of the Exhalation, the ſound is altered.

Great cracks.

A great crack is cauſed when the cloud is very hollow, his ſides thick, and the Exhalation very drie and copious: which if it break the cloud all at once, then it maketh a ſhort and terrible crack, much like the ſound of a gunne. If it rend the cloud all along, breaking out by leiſure, then it makes a noiſe like to the rending of broad cloth, or the ratling of ſtones out of a cart.

Small cracks.

A ſmall crack is cauſed when either the cloud or Exhalation is but weak; or the cloud ſtrong and the Exhalation of ſome little quantitie. And in ſmall thunders it ſometimes falleth out that when the ſides of the cloud are ſtronger then the force of the Exhalation is able to break, that then it runneth up and down within, and ſticking againſt the cold and moiſt ſides, maketh a noiſe much like to the quenching of a hot iron in cold water, or of a ſquib made of wet powder: in which regard* *Plinie* ſeemeth to averre that thunder is but the quenching of fire in a wet cloud. Alſo if the Exhalation be meanly ſtrong, and the cloud of unequall thickneſſe, then it breaketh out at the thinneſt places, and makes a kind of buzzing noiſe like to a wind blowing out of narrow holes.

* *Lib. 2. cap. 43.*

Sometimes thunder and no lightning; ſometimes lightning and no thunder.

And ſo ſometimes it happeneth that there may be a thunder-crack and yet no lightning; and ſometimes lightning without thunder.

The firſt is cauſed thus; either when the cloud is ſo thin that it cannot keep in the Exhalation till it be kind-

led, but ſuffereth it to go preſently forth, making a noiſe like to the wind out of a pair of Smiths bellows: or elſe when the cloud is ſo thick, and the Exhalation ſo ſlender and thin, that although it ſtirre up and down within the cloud, yet it fireth not, but waſtes it ſelf within that priſon, as not being able to get out. And thus may thunder be without lightning.

How there may be lightning without thunder.

The ſecond is cauſed, when either the Exhalation and Vapour are both thin, and the cloud alſo as thin: or elſe thus, namely when many thin, light, and hot Exhalations by immoderate heat are drawn up from the earth, and by the abſence of the ſunne are deſtitute of that force by which they ſhould be drawn up higher; yet ſomewhat aſcending by their own nature, (in that they be light and hot) they meet with the cold, either of the night in the loweſt Region, or elſe of the aire in the middle Region; and ſo by an *Antiperiſtaſis*, or reſiſtance of contraries, they are beaten back, and with the force of their motion ſet on fire, as in ſummer nights & evenings we often ſee after an hot parching day. Now this kind of lightning ſome call *Fulgetrum*.

The kinds of lightning.

Another ſort they call *Corruſcatio*; which indeed is nothing elſe but the ſhining of the lightning; the ſhining or glittering of it rather then the lightning it ſelf: for in this regard we can perceive a flaſhing when there be no clouds above our Horizon; or if there be clouds, we ſee the flaſhing when our backs are turned from them; or elſe we often perceive even through a thick cloud that it lightened, when the lightning came not ſo low, but onely iſſued out of a thinner cloud which was above that thicker one, and ſhined through it.

Why we ſee the lightning before we heare the thunder.

A third kind is called *Fulgur*: and this is accompanied with thunder, cauſed by the ſtrife and reluctation which the Exhalation maketh in the cloud, ſhewing it ſelf in the breaking of the ſaid cloud; and although the crack be

be heard long after we have ſeen the fire, yet they come together; the ſeeming difference being, becauſe the quickneſſe of our ſight preventeth our hearing; which is ſo much the ſooner done, either when the thunder is farre off and not near unto us, or when the wind is contrary; which is alſo ſeen in the cleaving of wood, or any the like knocking: for let us be but in ſome ſort diſtant from the partie making the noiſe or ſtriking the blow, and we ſhall ſee the ax heaved up again before we heare the ſound.

The worſt kind of lightning.

The next is *Fulmen*; and between this and the other is a great difference: For *Fulmen* is an Exhalation which in reſpect of its quantitie is ſo copious, and in reſpect of its qualitie is ſo hot and drie, and mixed with ſo many other vapours of a contrary nature, that when it breaketh the cloud wherein it is incloſed, it comes with ſuch a violence, and continues burning ſo long, that it falleth even to the very ground, making a more fearfull *fragor* or crack then ordinary: And oftentimes a great ſtone is blown out of the cloud with it; whoſe cauſe is alſo naturall. For when the Exhalation is drawn up with more then an ordinarie violence; or is ſo drawn up, or from ſuch a place as it may carrie much earthie matter with it, then is the ſtone procured. The matter cauſing it at the firſt is thin, and like unto the fineſt ſand that can be imagined; yet nevertheleſſe through the moiſture which it getteth in the Aire, and by the meeting with wet vapours in the aſcent, it clottereth together, and being alſo it ſelf of a kind of clammie nature, it disjoyneth not, but ſticketh faſt: and then by the exceſſive heat which it findeth in the generall matter of the Exhalation when it is fired, it is throughly hardened, even as a brick which is burned in the fire: & being * thus hardened and burnt, it breaketh forth with the Exhalation, and they both come tumbling down together. For the force of the Exhalation

The making of the thunder-ſtone.

* Or thus; *Generatur ex exhalatione terreſtri viſcoſa, & humore nubis, quas ardor fulminis celerrimâ tranſmutatione in ipſo ejus caſu (nam gravi ibi ſuſpensa aut haerere non poteſt) permiſcet, & in lapidem coquit, Fromond. lib. 2. Meteorolog. Artic. 7. cap. 3.*

halation ſhoots it out, and look whatſoever is in the way, it overthroweth, burneth and daſheth in pieces. Howbeit, when it ſtriketh the earth, it is reported to go never above five foot deep.

All this is pertinent to that which is called *Fulmen*. But for that other, which is *Fulgur*, the caſe is farre otherwiſe. For in regard of the little plentie of the matter it never falleth to the ground, but is waſted and conſumed by the way.

Three kinds of *Fulmen*.

Moreover, Philoſophers make three kinds of *Fulmen*; *viz.* *Terebrans*, *Diſcutiens*, and *Urens*: or (as ſome call them) *Scindentia*, *Infuſcantia*, and *Urentia*.

The firſt kind is drie of qualitie.

1. The firſt is ſaid not to burn, but rather to pierce, cleave, and extirpate ſuch things as are obvious to it. For ſeeing it is more ſubtill & pure then groſſe, as alſo wondrous drie, and carrieth with it great plentie of ſpirits, wind, or breathings, it muſt needs produce ſtrange effects, and paſſe through the pores of any thing be they never ſo ſmall; ſtriking through with ſuch wonderfull ſwiftneſſe, as that it cannot poſſibly hurt, but where it is reſiſted and hindered by the cloſe compoſure of that matter againſt which it ſtriketh. And hereupon it comes to paſſe that money is ſometimes melted in the purſe, & the purſe not hurt at all; the bones broke, and the skin ſound: yea and ſometimes the whole man burnt to aſhes when his clothes are not conſumed, with many the like ſtrange accidents. And why it ſhould cleave a wine veſſell and the wine be ſo dull as not to runne out untill ſome 2 or 3 dayes after, this may be a reaſon; *viz.* in regard of the ſwift alteration and change, whereby alſo all the clammineſſe of the wine is drawn to the outwardmoſt part, which keepeth in the wine as in a skin, not ſuffering it ſuddenly to diſperſe it ſelf.

The ſecond kind is ſomething moiſt.

2. The ſecond kind burneth not to aſhes, but blaſteth or ſcorcheth, leaving the tincture of fire, and as it were of

of ſmoke behind it; for the things which it ſtriketh do uſe to look black, or of a ſootie colour, like unto a chimneys ſtock. And this is cauſed in regard that this kind of lightning is farre more full of moiſture then the other; and yet in a manner as ſubtill, ſwift and pure: otherwiſe it would not blaſt but burn.

3. The third kind is *Fulmen Urens*; and this is *magis igneum quàm flammeum*, more fiery then flamie; being of a groſſe and earthy ſubſtance having much ſlimie matter in it: which makes it therefore ſet ſuch things on fire as are combuſtible, whenſoever it meeteth with them.

The third kind is moſt groſſe of the three.

And yet there are ſome things which (as * it is ſaid) the lightning hurteth not. As for example. The * Eagle, Joves bird, is free. The laurell is not hurt: neither can the earth be wounded any more then 5 foot deep. Such places alſo as are covered with the skins of Seals, or Seacalves, are ſecure: wherefore of old time the tents of the Emperours were covered with them for their better ſafetie. *Suetonius* telleth us a ſtorie of the Emperour *Caligula*, how he was ſcared with Thunder; who, although he bragged and boaſted of himſelf that he was a god, and threatned warre with *Jupiter* for a ſhower of rain that fell againſt his mind, was nevertheleſſe by and by ſo terrified with thunder and lightning, that he thereupon runnes and hides his head under a bed.

* *Plin. lib. 2. cap. 55.*

* The Poets therefore write that ſhe carries Jupiters armour, which is lightning.

Moreover it is ſaid, that if lightning kill one in his ſleep, it openeth his eyes: if it kill one whileſt he is awake, it ſhutteth them. The reaſon being becauſe it waketh him that ſleepeth, and killeth him before he can ſhut his eyes again: and him that waketh it ſo amazeth, that winking he dieth before he can open thoſe eyes of his which the ſudden flaſh of the lightning cauſed him to cloſe.

And know that it is not good to ſtand gazing upon the lightning at any time: for when it doth no other hurt, if it

Not wholeſome to gaze on the lightning.

it be any thing near us, it may dry up, or ſo waſte the cryſtalline humour of the eyes that it periſh the ſight: or it may ſwell the face, making it to break out with ſcabbes or leproſie, cauſed by a kind of poyſon in the Exhalation which the pores of the face and eyes admit and receive. For this is certain that the matter of lightning, ſeeing it cometh from ſulfurous and other poyſonous metallick ſubſtances, is much infected, and therefore hurteth where it entereth.

Sect. 2. Parag. 5.

Of ſuch Meteors as are fiery onely in appearance.

Artic. 1.

The Galaxia *is no Meteor.*

AND thus have I done with all thoſe kind of Meteors which are fiery in very deed, whether pure or mixt.

Now it followeth that I ſpeak of ſuch as are fiery onely in appearance; not being ſuch as they ſeem to be, but rather ſeeming more then they are.

Some account eight of them, and make the *Galaxia* or milkie way to be one. But that laſt may rather be left out: For although *Ariſtotle* would have the *Galaxia* to be a Meteor, yet his opinion is worthily miſliked of moſt men, and that not without good reaſon.

For if it were a Meteor, and of the nature of the Elements, as Exhalations are, it would be at the length conſumed like to other Meteors: but this circle never corrupteth nor decreaſeth; and therefore it is no ſublunarie concretion attracted and formed out of the ſtarres which are above it, and placed by their power in the higheſt part of the aire.

Moreover,

Moreover, if this his tenet were true, why hath it continued (the *Galaxia* I mean) in the ſame form, place, and magnitude alwayes from the beginning of the world untill now? And beſides, other ſtarres might alſo attain to the like luminous concretion as well as thoſe which he imagineth to be over it.

And moreover, this milkie way of *Ariſtotle* would admit of a Parallax, were it ſo as he perſwadeth; and according to the opticall conſideration (ſaith noble *Tycho*) by the ſhining of the fixed ſtarres through it, it would beget a ſtrange refraction, differing farre from that which is occaſioned by the vapours that are ſeen about the Horizon. For they ſeldome riſe to the twentieth degree of altitude; whereas this, proceeding from the *Via lactea*, would reach to the greateſt height.

What the *Galaxia* is.

Wherefore we may ſay that it is rather of the nature of the heaven, or a certain heavenly ſubſtance, but ſomewhat thicker then the other parts of heaven; or (if you will) much like to the matter of the ſtarres, or to the ſubſtance of the moon; but diffuſed and ſpread abroad, and not conglobated into one bodie as the ſtarres are. For although all be filled with aire from the earth to the fixed ſtarres, yet there the matter may begin to be more thick, firm, and ſolid; and ſo the waters above the heavens are the better upheld.

For concluſion therefore, not reckoning this amongſt any of theſe Meteors fierie onely in appearance, I may account them in number ſeven.

As thus: 1. *The colours of clouds.*

2. *Many Sunnes.*
3. *Many Moons.*
4. *Beams of light.*
5. *Crowns or circles about the Sunne or Moon.*
6. *The Rain-bow.*
7. *Chaps or openings in the ſkie.*

Concerning

Concerning all which in generall, although they ſeem to burn, yet they do not, but are cauſed by refraction and reflexion of light, either from the Sunne or Moon, or brighteſt Planets.

Artic. 2.

Of colours in the clouds.

AND particularly for the appearance of colour in the clouds, it ariſeth not from the mixture of the foure qualities, as it doth in bodies perfectly mixt, as herbs, ſtones, &c. but onely from the falling of light upon ſhadow or darkneſſe; the light being in ſtead of white, and the ſhadow or darkneſſe in ſtead of black. Not that they are alwayes perfectly white and black: for they differ according to the qualitie and compoſure of the cloud: wherefore ſome be very white, and that is when the vapour whereof the cloud conſiſteth is very ſubtil and thin; ſome yellowiſh, when the vapour is thicker; ſome ruddie and duskiſh, when it is meanly thick; ſome black, when it is very thick; and ſome greeniſh, when it is more waterie then ordinary being beſt diſcerned when it is farre from the Zenith and obvious by an oblique aſpect.

Why red clouds are ſeen onely in the morning and evening.

The red and ruddie colours are ſeen onely in the morning and evening, when the light of the ſunne is not in his full force; for at other times his light is too vehement, clear, ſtrong and piercing. And by a diligent obſervation of theſe colours, I think a man may as eaſily judge of fair or foul weather and the like, as a phyſician may of the temperature of the bodie by inſpection of the urine. But of colours you may ſee more * afterwards.

* *Vid. Part. 6. Artic. 1.*

Artic. 3.

Of many Sunnes and Moons.

AND now concerning many Sunnes; they are called *Parahelii*, from παρὰ and ἥλιος; which is as if one ſhould

ſhould ſay, *apud ſolem* : becauſe they are as it were with the ſunne in place, as alſo not abſent from him in ſplendour and faſhion.

Their generation is after this manner ; *viz.* when a ſmooth waterie cloud which is of equall thickneſſe, quiet and ſtill, is placed on the ſide of the ſunne : not under the ſunne for then there would be a circle ; nor oppoſite to the ſunne, for then there would be the appearance of a Rain-bow : but on the ſide ; which muſt not be too farre off, nor yet too near : for if it be too farre off, then reaſon telleth us that the beams will be too vveak to reflect in a convenient manner: or if it be too near, then the ſunne vvill diſperſe it vvithout any image at all.

Novv if ſuch a cloud as this vve ſpeak of ſhall happen to be on both ſides of the ſunne, then the appearance vvill be as if there were three ſunnes; vvhereas there is indeed but one : the other tvvo being the images of the true Sunne, ſeen onely by reflection or refraction upon the cloud on either ſide. Or be there more pieces of ſuch a cloud then one, ſet at a convenient diſtance ; then there may be many ſunnes: even as in a broken looking-glaſſe, every part vvill ſhevv the ſhadovv of that face vvhich is obvious to it.

What is ſignified by many ſunnes.

Moreover, theſe many ſunnes may be ſaid to have a double ſignification ; the one naturall, the other ſupernaturall.

According to their naturall ſignification, they betoken rain and moiſt vveather ; becauſe they cannot appear but in a moiſt diſpoſition of the aire.

A rule and an obſervation concerning ſtrange ſights.

And as for their ſupernaturall ſignification, experience hath vvitneſſed, that they have appeared as the portenders of change in ſtates and kingdomes ; or as the foretokens of Gods vvrath upon ſinners. For this is a rule, that ſuch things as are ſtrange may be derived both from naturall cauſes, and alſo include God the chief and beſt cauſe

cauſe of all things; by vvhoſe admired providence each thing is ordered & by whoſe unſpeakable wiſdome each particular change hath been decreed: yea even in the courſe of nature (before ever nature vvas) he both foreſavv and appointed hovv things ſhould happen; although in reſpect of our vveakneſſe and vvant of skill the ſearching of them out be too abſtruſe and hard. For as I verily believe, that not ſo much as one poore ſparrovv falleth to the ground vvithout Gods providence; ſo I do alſo acknovvledge, that by his providence likevviſe he bringeth to paſſe theſe and the like things, for ſuch ends, as he in his ſecret counſell hath determined; uſing his creatures (vvhoſe courſes in each particular he both ſet and foreſavv) as inſtruments and means to effect them.

But I proceed. And as for the ſupernaturall ſignification of theſe ſunnes, experience (I ſay) hath vvitneſſed that ſome ſtrange thing or other uſually followeth after them. As not long before the contention of *Galba*, *Otho*, and *Vitellius*, for the Empire of Rome, there appeared three ſunnes, as it vvere pointing out the ſtrife vvhich followed ſoon after betvveen them three * for the imperiall diadem.

* Fulks Meteors.

Alſo in the yeare * 1233. upon the 7 day of April, foure ſunnes vvere ſeen beſides the naturall ſunne: in vvhich yeare (as *Lanquets* chronicle teſtifieth) there vvas great debate kindled, and much variance ſtirred up betvveen *Henry* the third, K. of *England* and the Lords of his kingdome: and in the very * next yeare, *England* vvas vvaſted vvith fire and ſword from *Wales* to *Salisburie*; vvhich ſaid town vvas alſo burned: and at the ſame time vvas a great drought and peſtilence.

* Stows Abridg. of chron.

* Stow, ibid.

* Idem.

Alſo in the yeare * 1460 three ſunnes again ſhevved forth their orient faces, which vvas but the day before the three Earls, *viz.* *Edward* Earl of *March*, vvith the Earl of *Pembroke*, and Earl of *Wilt-ſhire*, fought their great

great battel in *Wales* at *Mortimers* croſſe (as *Stow* in his Abridgement affirmeth ;) where the Earl of *March* put the other two to flight, and ſlew many of their people. And again, in the yeare 1526. towards the ſlaughter of *Lewis* the ſecond, King of *Hungary*, *three ſunnes marched out, * betokening the three Princes which ſtrove for the kingdome after him: which three were theſe, *viz. Ferdinand*, who was afterwards Emperour, and *John Sepuſio Vaivode* governour of *Tranſilvania*; as alſo *Solyman* the Magnificent, or great Turk, being one of the hardieſt captains in all his time.

*Fulks Meteors. * In the yeare 1619 were alſo ſeen at Lowm in the moneth of May, at the riſing of the Sunne. *Fromund. Met. lib. 6.*

And now after the conſideration of many Sunnes, it followeth that I ſpeak of many Moons, of which it is no hard matter to know the naturall cauſe, ſeeing their generation is, as before hath been ſhewed concerning many Sunnes.

For if a watry Cloud ſhall ſide-long ſit,
And not beneath or juſtly oppoſite
To Sunne or Moon; then either of them makes,
With ſtrong Aſpect, double or treble ſhapes
Upon the ſame. The vulgar then's affrighted
To ſee at once three ſparkling Chariots lighted;
And in the Welkin, on nights gloomie throne,
To ſee at once more ſhining Moons then one.

DuBart.

Artic. 4.
Of Beams or Streams of light.

NExt unto theſe I mentioned Beams or Streams of light, and they are generated after this manner; namely when the light of the Sunne falleth into a watery cloud of unequall thickneſſe, or rather of unequall thinneſſe; or into ſuch a cloud whoſe parts are ſome of them of a ſpungie nature, and ſome of them more cloſely compacted: For the thinner & more ſpungy parts receiving the light do repreſent certain clear and white ſtreaks

or

or beams, whileſt the thicker parts and more full of humour are not pierced at all, but look of another hue; from whence it comes to paſſe that theſe ſtreams are often of differing and many colours.

Artic. 5.
Of Circles or Crowns.

CRowns, Garlands, or Circles, are ſeen ſometimes about the Sunne, ſometimes about the Moon, and ſometimes about the brighteſt Planets as *Jupiter* & *Venus*. This appearance is commonly called * *Halo*; and the matter or ſubject of it is a cloud, which muſt be endued with three properties: Firſt, that it be thin and not thick; Secondly, that it be equall and uniform, not in one part more thinne then in another; And thirdly, that it be directly under the Sunne, Moon, or any ſuch ſtar whoſe beams cauſe the circle: Unto which adde this laſt, namely that it be not diſquieted by any wind. And being thus placed and compoſed, look how a ſtone caſt into the water makes a circle untill the force of the blow be waſted; So this watery cloud being ſtruck with the force of the Sunnes, Moons, or ſtarres beams, doth retain their light in form & manner of a circle. Or rather thus; the beams of the ſtarre, &c. equally diſperſing themſelves ſo farre as they can, do at their utmoſt extent make a refraction in the cloud, which muſt of neceſſity be round, becauſe the body of the ſtarre it ſelf is round, and cannot poſſibly ſend out his beams further in one place then in another. This therefore made *Du Bartas* ſay,

Sometimes a fiery circle doth appear,
Proceeding from the bauteous beams and clear
Of Sunne and Moon and other ſtarres aſpect,
Down-looking on a thick-round cloud direct;
When, not of force to thruſt their rayes throughout it,
In a round crown they caſt it round about it.

And

* Halo, Græcis ἅλος nominatur, hoc eſt, Area: quoniam (ut Seneca teſtatur) apud veteres tetendis frugibus loca deſtinata ferè rotunda fuerunt. Latini Coronam vocant, quia rotundâ plerumque conſtat figurâ, & ſidera cingere atque coronare videtur.

And note that ſometimes it appeareth greater, ſometimes leſſer: which is in regard of the qualitie of the matter whereof the cloud conſiſteth. For if it be groſſe, the beams piercing it can ſpread or dilate it but a little way. If it be thin, they then are able to dilate it further.

And as for their ſignifications, they ſometimes ſignifie rain, ſometimes wind, ſometimes fair, clear, and calm weather, ſometimes froſt, ſometimes tempeſt, and ſometimes ſnow.

The ſignification of Circles.

1. Rain, if the circle wax altogether thicker and darker.

2. Wind, when the circle breaketh on the one ſide: The reaſon whereof is, becauſe the circle is broken by the wind which is above and not yet come down to us here below: But by this effect above, we may gather both that it will come, and alſo from what quarter; namely from that quarter where the circle breaketh firſt.

3. But if it vaniſh away and be diſſolved altogether, or in all parts alike, then it is a token of fair weather:

4. Or of froſt, in winter, when it is great about the *Moon:

5. Of ſnow, when at the ſame time of the yeare it ſeemeth to be craggie and rockie:

6. Or of tempeſtuous weather, when it looketh ruddie, and is groſſe, and broken in many parts.

And thus much concerning Circles.

* They are very ſeldome ſeen about the Sunne, becauſe of wind in the day time; or becauſe the Sunne either draweth the vapours too high, or elſe diſperſeth them too much. In the yeare 1104 there was a blazing ſtarre and 4 circles about the Sunne, which was a ſigne of the new kindling malice again between Henry the firſt, King of England, and his brother Duke of Normandy. Stow in his chron.

Artic. 6.
Of the Rain-bow.

THe Rain-bow is to be ſpoken of next: And this is nothing elſe but the apparition of certain colours in an hollow, watery, diſtilling, or dropping cloud directly oppoſit to the Sunne, repreſenting in its faſhion half a circle.

Or thus; It is a bow of many colours, appearing in a dewie, dark, droppie, and hollow cloud, by reflection of the Sunne-beams oppoſite to it. For this is certain, that lightſome or luminous bodies do cauſe images colours, or appearances upon ſlender, clean, and thin objects: Now of all bodies the Sunne is moſt lightſome; but the aire and water are clean, thin, and ſlender.

The efficient cauſe of the Rain-bow.

Here then it appeareth that the Efficient cauſe of the Rain-bow is the light or beams of the Sun; which falling into fit, apt, or convenient matter, oppoſite to them, are refracted and reflected to our ſight.

The materiall cauſe.

The Materiall cauſe is not water in act, nor yet thick aire, but a dewie vapour; which is not *continuus, ſed potiùs corpuſculis guttularum diſcretus*; not abſolutely of one bodie, but rather ſevered into many bodies, or little drops.

The formall cauſe.

The Form of it is to be gathered out of the Figure and Colours.

And for the Figure, we ſee it is circular: But yet it never repreſenteth to us any more then a Semicircle: and not alwayes ſo great an arch: The reaſon of which is, becauſe the centre or middle point of the Rain-bow, which is diametrally oppoſite to the centre of the Sunne, is alwayes either in the Horizon, or under it: So that ſeeing our ſight of the heavens is cut off by the earth in ſuch a manner as that we can never ſee above half of them, it muſt needs be, that the appearance of this circle be either more or leſſe to us, according to the Sunnes great or little diſtance from the Horizon.

The colours in the Rain bow

And as for the colours, they are commonly accounted three, *viz.* Ruddie, Green, and Azure. To which ſome adde a fourth. The firſt is in the thickeſt and darkeſt part of the cloud: For where a bright ſhining falleth upon a darkiſh place, there it repreſenteth a ruddie colour, being ſomewhat like a Flame. The ſecond is cauſed dy a more weak

vveak infraction, being in a remoter and more vvaterie part of the cloud: vvhereupon it looketh greeniſh.

The third, vvhich is further into the cloud, proceeds from the vveakeſt infraction, and is therefore of a more dark and obſcure colour, tending to a blevv or an azure hue. And ſometimes a fourth colour is alſo perceived, being very like a yellovv or orenge-tavvnie, proceeding from a commixture of the red and green, according to *Ariſtotles* judgement: of vvhich the learned may ſee *Jul. Scaliger. exerc.* 80. *ſect.* 4.

Novv theſe colours in ſome rain-bovvs are more vehement or apparent, in others more remiſſe or obſcure; vvhich is according to the aptneſſe of the cloud, &c.

And in rain-bovvs cauſed by the moon (for ſometimes, though ſeldome, they have been ſeen in the night) the colours are vveaker, vvhiter, and leſſe conſpicuous; being in a manner as vvhite as milk: vvhich is, becauſe the moon having a borrovved light, is nothing ſo ſtrong in the projecting her raies, but farre more feeble then the ſunne. Moon-bows.

But come to the finall cauſe, and you vvill find it tvvofold; partly Naturall, partly Supernaturall. The finall cauſe.

As it is Naturall, vve take it either as a ſigne of rain, becauſe it cannot appear but in a vvaterie cloud, vvhich is ſo prepared that it is ready to fall in very drops: or as a ſigne of fair vveather; namely then vvhen the beams of the ſunne are ſtrong, and the heat of it ſo great that the moiſture of the cloud is dried up, and the drops attenuated into thin aire. All vvhich may be diſcerned after this manner, *viz.* when the colours grovv either darker and darker, or clearer and clearer. For if the colours appear dark, thick, or obſcure by little and little, till at the laſt they bury themſelves in a black cloud, then rain followeth. But if the colours by degrees grow clearer and clearer till at the laſt they vaniſh away, then vve may How to judge of the weather by the rain-bow.

expect fair and bright weather. And this as it is a naturall ſigne.

But now as it is Supernaturall: and then we behold it as a ſigne or ſymbole of Gods mercie towards the world, betokening that it ſhall never be deſtroyed again through any Deluge or univerſall Floud. For *it ſhall be a ſigne of the covenant* (ſaith God) *between me and the earth*, viz. *that there ſhall be no more a Floud of waters to deſtroy the earth*, Gen. 9.

The derivation of Iris, ſignifying the rain-bow.

From both which ſignifications or ends, it may well be called *Iris*; for εἴρω in the Greek is as much as *dico* in the Latine, ſignifying *I ſay, I publiſh, I tell*, or *I declare*. *Iris* therefore comes from εἴρω, *dico*; Firſt, becauſe this bow publiſheth or telleth to us the conſtitution of the aire. Secondly, becauſe it declareth the covenant of God made with the world after the Floud; ſhewing that his wrath is ſo farre forth appeaſed, that he will never drown the world again; which appeareth even in the order obſerved in placing the bow: for we ſee it with the bended ends downwards, and as one that holdeth a bow in peace; inſomuch that had it a ſhaft in it, the earth ſhould not be ſhot; neither ought man to fear that the Lord will ſhoot any more ſuch arrows of diſpleaſure as before.

Some have thought that there was no rain-bow before the Floud, but that it appeared ſince; becauſe God ſaith, *When I make the heaven thick with clouds, I will put my bow in the clouds*, Gen. 9.

The rainbow was before the Floud.

To which it may be anſwered, that God ſaith, not that he will of new create a bow, but that he will then put it into the clouds ſo as it never was before: namely to be a ſigne, &c. So that although it were not as a ſigne of any covenant before the Floud, yet without doubt it was as a Meteor then as well as now; and therefore was: otherwiſe we might deny both bread, and wine, and water

water to be before the inſtitution of the Sacraments :for it is the ſame reaſon. Wherefore, as there was water before ever it was uſed for the water of regeneration in the Sacrament of Baptiſme ; and as there was bread and wine before ever they were uſed as ſignes at the holy Communion:ſo alſo the rain-bow was before ever it had that office to be a ſigne of Gods covenant between him and mankind, juſt as at this day it appeareth even to ſuch as are not of the Church;very Heathens and Pagans beholding it as well as we.

Beſides, there were from the beginning the ſame cauſes in nature to produce it:for there wanted neither a ſunne to draw vapours from waterie places, nor yet a convenient place in the aire to thicken them into clouds ; neither was the ſunne deſtitute of ſparkling raies to make reflection and infraction : but as it is cauſed now, ſo alſo then ; and to think otherwiſe were to think amiſſe.

Some again have been perſwaded that this bow was before, but was not in a cloud before. And thus thought certain amongſt the Hebrews.

But this is a reaſonleſſe aſſertion, and againſt all Philoſophie, and not at all approved by Divinitie. For how could that appear in a clear aire, which can have no exiſtence or being, but in a dewing or diſtilling cloud ? Verily of both abſurdities the former was the better, namely that it was not at all : and yet that alſo wanted grounds to uphold it, as hath been ſhewed, and is yet further manifeſt. For ſeeing the Lord God in ſix dayes finiſhed the creation, and ſet the perfect order of all his creatures ; it followeth that the rain-bow had then his place either in being or in power. And thus from two abſurdities I bring you to a third. For furthermore, it hath been the opinion of ſome idle doting brains to think that there ſhall be no rain, nor rain-bow, 40 years before the

A groſſe abſurditie of ſome who think that there ſhall be no rain nor rain-bow 40 years before the worlds end.

the end or deſtruction of the world by fire; becauſe the very aire (ſay they) muſt be prepared a long time before by a continuall drineſſe, and each thing made fit for combuſtion.

Which ſurely is a brain-ſick phancie. For what do they in this but ſhew their extreme follie; derogating, not onely from reaſon, but alſo from the power of God? For is not God able to deſtroy the work of his own hands without ſuch a ſuppoſed preparation, and make the world combuſtible in an inſtant, if need be? Or ſhould there be no rain, and conſequently no bow (becauſe it appeareth in a waterie cloud) then how ſhould the fruits of the earth be preſerved? Great famine and miſerie muſt needs follow in the world if this be true. For when the clouds drop no fatneſſe, then the ground pines away through barrenneſſe; and vvhen the heavens are iron, then the earth is braſſe: whereas it is manifeſt, that at the coming of Chriſt there ſhall be pleaſant and fruitfull times; times full of mirth, wherein they ſhall eat and drink, marrie and be given in marriage even as it was in the dayes of Noah. Who therefore will think that theſe men are in their right minds, whileſt they affirm that no rain ſhall fall by the ſpace of 40 years before the vvorld endeth?

What the Jews do at the ſight of the rain-bow.

The Jews as ſoon as they behold this bovv (not daring to gaze upon it) do preſently go forth and confeſſe their ſinnes, acknowledging that they are worthy to be deſtroyed with a Floud as the old world was; and in being ſpared they celebrate the mercie and clemencie of God for ſparing them. But, ſaith * *Pareus*, although they mingle this religion with much ſuperſtition, becauſe they dream that the name of *Jehovah* is as it were engraven on the bow, and becauſe they turn their eyes away as from the majeſtie of God appearing there, not daring to look upon it, leſt (as may be ſaid) beholding the

* On Gen. chap. 9. pag. 898.

the face of God they die: Yet it is meet even for us upon the ſight of it to be ſo farre forth touched with a reverence towards God, that we paſſe not away the ſymbole of the covenant with a brutiſh dulneſſe, leſt thereupon we grow unmindfull of Gods ſeveritie and goodneſſe.

There is alſo another thing obſervable concerning this bow which I may not forget; namely this, The myſterie which (according to ſome mens phancies) is involved in the colours. For in a myſterie they would have it betoken both the baptiſme of Chriſt, by water and fire; & alſo the two judgements of the world, the one alreadie paſt, the other yet to come: that which is paſt appeareth in the watery colours, ſhewing that the world hath been drowned: that which is yet to come appeareth in the fiery colours, ſhewing that the world ſhall be deſtroyed by fire, or burnt up at the day of judgement. But (ſaith * one) theſe and the like applications are wittie and prettie, rather then wiſe and pithie: I leave them therefore, and proceed.

* Dr. Willet on Gen.

Artic. 7.

Of chaps or gapings in the ſkie.

THe Philoſophers call this Meteor *Chaſma, ἀπὸ τοῦ χαίνω, quod eſt hio, vel dehiſco,* to gape or open: and in Latine it is *Hiatus,* a word of the ſame ſignification. There are two kinds of theſe gapings or openings: the one wide the other round. And although I reckon theſe among ſuch fiery Meteors, as are fiery onely in appearance; yet it may be that they ſometimes burn, and ſometimes onely ſeem to burn.

They ſeem to burn when the Exhalation by reaſon of the * want of viſcuous matter is not enflamed, but enlightned rather on the outward parts, having much raritie or thinneſſe in them: at which time the middle part receiving

* *Tiraboſco compendiat. Philoſoph.*

ceiving no light, in regard that it is black and thick, there appeareth as it were a gulf in the skie. The reaſon whereof is, becauſe the black is compaſſed about with white; which white preſenting it ſelf * ſooner to the ſight then the black, makes the black ſeem to be farre off, and the white near hand: and the black being farre off, ſeems like a gaping deep: which (as hath been ſaid) is ſometimes * greater, ſometimes leſſe, according to the faſhion or quantitie of the Exhalation, or cloud repreſented by it. And after this manner do cunning painters deceive the eye in ſhadowing their pictures. For when a bright, clear, and aery colour is laid circularly, and a thick, dark, and obſcure colour in the middle of it, then the appearance is like ſome gulf, hole, deep or pit: which they faſhion diverſly according to their skill in phancying the laying of their colours.

All this is when it burneth not.

But note that ſometimes this Meteor burneth in very deed. Which is when the Exhalation hath much viſcoſitie or clammie matter in it; the thick and dark not burning, but remaining in the middeſt; and the thinner parts on fire, deceiving the ſight with a ſeeming gaping, as before when there was onely light in thoſe thinne parts in ſtead of fire.

And thus have I ſhewed you the naturall cauſe of all fiery Meteors.

* *Quæ clara ſunt, alboque apparent colore, celeriùs viſum movent: quæ verò nigra & obſcura ſunt, minus eum afficiunt.*

* *Si magna fuerit, vorago, ſi non ita magna, hiatus nominatur. Tuelmin.*

Sect. 2. Parag. 6.

Of watery Meteors and their ſeverall kinds.

NOw it followeth that I ſpeak ſomething of watery Meteors, and ſhew after what manner they are generated. They be called watery becauſe they conſiſt moſt of water; their ſubſtance being that kind of Exhalation which we call *Vapor*, and not *Fumus*.

And

And that which in the firſt place offereth it ſelf, is *Nubes*, a Cloud.

Artic. 1.
Of Clouds.

I Begin therefore with clouds. And a cloud is a vapour or Exhalation cold and moiſt, drawn from the earth out of wet or watery places, by heat of the Sunne, into the middle Region of the aire; where by cold it is ſo thickned and knit together, that it hangeth, untill either *the own weight, or ſome reſolution, cauſeth it to fall. If it be a great cloud, it is *Nubes*; if it be but a little one, it is called *Nubecula*. The name comes *ab obnubendo, id eſt, operiendo cœlũ*, from hiding or covering the heavens; becauſe a cloud (through the thickneſſe that the vapour is condenſed into) hindereth, that a leſſe portion of the heavens is conſpicuous, then otherwiſe would be.

It is alſo twofold; either fertill, or barren.

A fertill or fruitfull cloud affordeth rain: but a barren cloud doth not; becauſe it is at length by the blaſts of vvind, and virtue of the heavenly bodies, turned into thin aire.

And to either of theſe clouds belong motion & colour.

Their motion is cauſed by the vvind moſt commonly, through vvhoſe force they are driven to & fro: But if the vvinds blovv not, then they are dravvn along by the Sun, and made a companion vvith him in his travels, alvvayes moving that vvay vvhich the Sun goeth.

Concerning their colours I ſpake before in *Paragraph* 5. *Article* 2. And therefore here you may expect the leſſe: yet let me ſay that they are either ſimple or mixt.

Black or vvhite are ſimple; becauſe they conſiſt of no other colours. But red, green, and the reſt, are mixt.

They

* It is ſaid that clouds have ſometimes fallen down to the earth with great noiſe, to the terrour & damage of ſuch as had them in their Zenith, which clouds came but from the higheſt part of the loweſt region: yet nevertheleſſe they were generated in the middle Region, but waxing very heavie have ſunk down by little an little, till at laſt they ſeem to fall no further then the loweſt Region: But this is ſeldome. They may alſo fall by drops through their own weight.

either by the quick reſolution of the cloud, or elſe by the little diſtance of it from the earth. But if they be ſmaller, then either the* great diſtance or ſlow reſolution maketh them of no ample quantitie.

* This may be ſeen if any will but aſſay to poure water from an high place.

The firſt of theſe is named *nimbus*; the other is called *imber*.

And note that the diſſolution (as hath been ſaid) proceedeth out of heat; which is not onely of the ſunne, but of winds alſo of an hot temper: as is ſeen in the ſouthern wind, which bloweth up rain ſooner then any other wind. And as for rains which come from cold coaſts, and at cold times of the yeare, if the cloud be not at ſuch times (as ſome may think) diſſolved through the heat of any wind, it diſſolveth it ſelf through its own weight, (being a little holpen by the ſunne) for it continueth in the aire even whileſt it can ſtay no longer. And at theſe times alſo, if we conſider all aright, we ſhall find that the wind ſomewhat helpeth, although not ſo ſpeedily as from hotter coaſts: for naturally there is a kind of heat in every wind, (becauſe it is an Exhalation hot and drie) although by accident (as from the nature of the place over which it paſſeth) it may be altered: of which I ſhall ſpeak more afterwards. And beſides all this, the ſecret influence of the Planets worketh greatly towards the diſſolution of the foreſaid vapours.

Ordinary and extraordinary rains.

But I proceed. And now it followeth that I divide all ſorts of rain into two kinds: Firſt ſuch as are ordinary; ſecondly, ſuch as be extraordinary.

Prodigious rain-

I call thoſe ordinary when nothing but water falleth. And I call thoſe extraordinary which others call prodigious rains: as when vvorms, frogs, fiſh, vvheat, milk, fleſh, bloud, vvooll, ſtones iron, earth, &c. fall from the clouds. *Plinie* makes mention of many ſuch prodigies as theſe, in the 56 chapter of his ſecond book; ſetting dovvn the times vvhen they happened.

Concerning

Concerning all which, next under God (the cauſer of the cauſes cauſing them) theſe or the like reaſons may be urged to ſhew how it is poſſible they ſhould be procured, and upon what cauſes they naturally depend.

Worms. 1. And firſt for the raining of worms; it may be thought that the putrefaction of ſome dead carcaſſes or other hath been drawn up into the aire as fumes and vapours are, where it breedeth ſuch worms as uſe to breed out of the like matter here below.

Frogs. 2. The like may be ſaid of frogs, when the vapour is exhaled out of mariſh grounds at ſuch times as they engender.

Fiſhes. 3. So alſo of fiſhes; excepting that (as is ſuppoſed) the force of winds may ſuddenly ſweep away little frey out of ponds upon montanous places: and ſo alſo little young frogs, with many the like things, may be taken up. Some write of a whole calf falling from the clouds; and have been thereupon perſwaded that it is poſſible, of Vapours and Exhalations, with the power of heavenly bodies concurring, a calf may be made in the aire. But this is idle. It was therefore (as others write) taken up in ſome ſtorm of whirlwind, and ſo let fall again.

Wheat. 4. As for wheat and other grain, it hath been obſerved that their raining down hath often come in caſe of extremitie, to the great preſervation and refreſhment of the diſtreſſed: in which regard it may be ſuppoſed that it was an immediate work of God, wrought without the rule of nature: ſo, that were all the wits in the world preſt into one, yet were they all too weak to ſhew a true cauſe of ſuch a prodigie. Which made *Du Bartas* write concerning ſuch;

Let them declare what cauſe could erſt beget
Amid the aire thoſe drizzling ſhowres of wheat,
Which in Carinthia *twice were ſeen to ſhed:*
Whereof that people made them ſtore of bread.

To

To ſpeak therefore as I think, I will not boldly affirm how this was cauſed, but onely touch at the poſſibilitie of it; namely, that it might be effected like unto other ſtrange rains, firſt drawn from the earth into the aire, and then ſent down again. For (as I have * already ſaid) in ſhewing probable reaſons for ſuch things as are ſtrange, we do alſo include God the chief and beſt cauſe of all things. And ſo alſo we reade, that when the Red ſea was bayed up with a double vvall, to give the children of Iſrael ſafe and free paſſage through it, God ſent a ſtrong Eaſt-vvind all that night, &c. by vvhich the vvaters vvere divided, Exod. 14. 21. And again, vvhen the Quails came and filled their tents, being as it vvere rained round about them; they vvere brought from the ſea vvith a vvind, and let fall a dayes journey on this ſide, and a dayes journey on that ſide, even round about their camp, Numb. 11. 31.

* Paragraph 5. art. 3. and elſewhere.

He that hath ſeen (ſaith * one) an egge-ſhell full of devv dravvn up by the ſunne into the aire, in a May morning, vvill not think it incredible, that vvheat and other grain ſhould be dravvn up in much hotter countreys then ours is, much rather the meal or flower which is lighter.

* Fulk in his Meteors.

Milk.

5. By the like reaſon alſo it ſometimes raineth milk: for vvhen the *intenſiſſimus ſolis calor*, the vehement heat of the ſunne, ſhall either dravv milk from the udders * of cattell, and ſhall mix it vvith the other parts of the cloud; or ſhall ſo throughly trie, purifie, digeſt or concoct the vapour, that it may look ſomething vvhite, then vvill the drops look as if it rained milk.

* Which may the ſooner be done in ſummer, and in hot countreys,

Fleſh.

6. As for the raining of fleſh, it is ſuppoſed to be after this manner, namely through the dravving up of bloud from places vvhere much bloud hath been ſhed, vvhich being clottered together ſeemeth as if it vvere fleſh.

Bloud.

7. And ſo alſo it may rain bloud; namely vvhen it is not

not clottered together, but thinner, &c. In the yeare of Chriſt 480 was ſuch a rain. As alſo in the yeare 864, near unto *Brixia* in *Italie*, was the like. Yea and before either of theſe times, our own * chronicles tell us that in the dayes of *Rivallo* King of the *Britains*, we alſo had bloud rained; upon which enſued great mortalitie of people. Hiſtories make mention of the like wonders at other times.

* Lanquet, Stow, &c.

Object. But, ſay ſome, there is often great ſtore of bloud ſpilt and yet no prodigie appeareth.

Anſw. To which is anſwered, that it is not the ordinarie exhaling virtue which reſteth in the ſtarres and Planets that can draw up ſuch bloudy vapours, although much bloud be ſpilt; but then onely when there is a more unuſuall concurrence of cauſes: for ſometimes they are diſpoſed to one thing, ſometimes to another. And for the working of any ſtrange thing, it muſt be when there is a ſtrange kind of combination amongſt them. To which purpoſe we know (although we cannot alwayes directly ſee and demonſtrate how they are mixed and combined) that they principally intend and cauſe at the ſame time other changes, of which the viſible prodigie is but the proclaimer or fore-runner: as, if you look but a little before concerning Comets, you may ſee, and ſo reſt ſatisfied.

And unto this alſo adde, that there may be drops like unto bloud, and yet no bloud drawn up: And this may be, either when the Sunne draweth vapours out of putrified watery places, in which (as I have often ſeen) in a drought reſteth much ſlimie and red-coloured corrupted water; or elſe when the Sunnes immenſive heat doth ſo boyl the water in the cloud, that like unto the urine which a man maketh in a burning feaver, it looketh red when it falleth. The like cauſe I gave before unto the water of a white colour: but know that it muſt then be

be of another qualitie, the matter of the vapour I mean: for there are ſome kind of waters, as is well known, which being boyled turn to white ſalt, &c. And as for a red colour, the ordinarie rain ſheweth that it is poſſible: for we ſee that ordinary rain-water looketh alwayes more brown then ſpring or river-water, being as if a more powerfull operation would turn it into red.

Woll. 8. The raining of wooll or hair, is when a certain moſſineſſe like wooll, ſuch as is upon quinces, willows, and other young fruits and trees, is drawn up by the Sunne among Vapours and Exhalations, which being clottered together falleth down like locks of wooll, or hair.

Stones. 9. Concerning ſtones, they proceed from earthly matter gathered into the clouds, as before was ſhewed concerning the Thunder-ſtone, &c.

Plinie, in the 58 chapter of his ſecond book, writeth of a ſtrange ſtone which fell out of the heavens; the fall whereof was foretold by *Anaxagoras* in the ſecond yeare of the 78 Olympiad.

Iron. 10. Iron may alſo drop out of the clouds, when the generall matter of all metalls, which is quickſilver and brimſtone, with the ſpeciall matter of mixtion making iron, are all drawn up together, and there concocted into metall: Or (as one ſaith) *Quando vapores metallici aut ſulphurei in aëre indurantur, vehementi ſiderum caliditate*; When metallick vapours, or vapours of a ſulfurous nature, are hardened in the aire by the vehement heat of the ſtarres.

Earth. 11. And as for earth, chalk, dirt, and the like, it is drawn up in thin duſt at the firſt with the vapour: Or elſe, by force of ſome wind blovving from caverns, or holes of the ground, it is carried up; and being conglomerated, or as it vvere glued together, falleth dovvn again.

12. But

12. But beſide all theſe, there have ſometimes been red drops, which falling upon mens garments have made a ſtain like unto a croſſe. Such drops as theſe fell upon the * clothes of the Jews, when in the dayes of the Apoſtata *Julian* they went about to reſtore their citie and temple. For when the ſaid *Julian* raged with impietie and deviliſh fury againſt the Chriſtians, he gave the Jews licence to build their temple, that they might reſtore again their ancient ſacrifices, and the like things that they longed for: at which time *Cyril* was Biſhop of *Jeruſalem*; and he (to animate the Chriſtians) ſhewed that it was impoſſible for the Jews to finiſh that work which they had begun: alledging the Prophet Daniel in his ninth chap. at the 27 verſe; and alſo that ſaying of our Saviour in the 24 of Matthew: by both which places it did appear, that *their houſe was left unto them deſolate*, and that *there muſt not be one ſtone upon another*; but that *their deſolations muſt be perpetuall.*

Red croſſes.

* Ruffinus, *Hiſtor. Eccleſ. lib.* 1. *c.* 32.

Thus it happened to the Jews. But this ſurely was a thing altogether miraculous. For their red croſſes came not alone, but were accompanied with other prodigies. As firſt of all an Earth-quake, which overthrew and tumbled down their building which they had raiſed upon the old foundation. Then came forth a fire which conſumed all their engines and inſtruments. And laſt of all fell theſe drops, imprinting upon their clothes croſſes with ſo deep a ſtain, as they were not able to waſh them out: And both the * ſame night, and night after, was alſo a bright ſigne of the croſſe ſeen in the skie, as *Theodoret* in his Eccleſiaſticall Hiſtorie reporteth: adding herewithall, that when the Jews ſaw this, they fled and returned home, being perplexed through fear of a divine ſcourge; confeſſing that he, whom their forefathers had nailed to a croſſe, was God indeed.

* Theod. *Hiſtor. Eccluſ lib.* 3. *c* 20.

This was both the prodigie, and the iſſue of it: of

which, being ſo plainly miraculous, I know not what to ſay.

Reaſons concerning Red croſſes at other times.

But I find that other times have in a manner afforded the like. Wherefore (although I ſpeak nothing at all of theſe at this time thus miraculous) concerning them ſome reaſons may be given.

* *Lib. 4. cap. 6.*

And not to go farre, *Magirus*, in the * Comment upon his Phyſicks, telleth us, that in *Suevia*, a Province in *Germanie*, in the yeare of our Lord *1534, the aire diſtilled certain red drops, which falling upon linen garments, made ſuch an impreſſion or ſtain as was like unto a croſſe. Which impreſſion (as he alledgeth out of *Cardan* his ſixteenth book *De ſubtilitate*) might be procured thus; *viz.* becauſe a certain kind of extraordinarie dry duſt ſticked to thoſe garments; which, by the piercing or through-waſhing drops falling upon it, was ſo miraculouſly divided into parts, that there ſeemed a figure as of a croſſe. Or thus, becauſe the woven threads in themſelves had ſuch a form. Or elſe (which is moſt probable) becauſe the humour in the middle part lay on high, whereas the ſides were but thin, and faſhioned according to the daſhing of the drop. For when a drop falleth upon any thing vvith a kind of force, vve ſee that moſt of the humour reſteth in the midſt, vvhileſt certain ſparkling raies are daſhed about the ſides: And thus he thinketh it might be then, in the fall of thoſe ſtaining drops; vvhich vvhy they ſtain, hath relation to that vvhich I ſaid before concerning the raining of bloud.

*So alſo in Weſtphalia, *ann.* 1543. at Lovane, 1568. *ipſo Pentecoſtes die.* And in the yeare 1571. *in ditione Embdenſi, in Frieſia Orientali-bus.* See Fromond. Meteor. *Lib. 5. cap 6. art. 3.*

The devil many times worketh in the Aire.

I vvill therefore novv conclude; adding in the laſt place, that the devil, by Gods permiſſion, both often hath and alſo doth produce many ſuch prodigies as theſe that I have ſpoken of, vvith ſundry other like unto them; eſpecially amongſt the * Heathen, Pagan, and ſuperſtitious Nations. For he is *quovis homine ſcientior*, more ſubtill then any man; his knovvledge and skill vvhereby he

* Pſal. 78. 49.

he vvorketh vvonders ariſing, Firſt, from his ſpirituall nature, vvhich proclaimeth a large meaſure of cunning and vviſdome in him: for we knovv that there is a greater meaſure of knovvledge in man, then is in a brute beaſt, by reaſon of that nature vvhich God hath given unto man above beaſts: and vvhere there is a nature and a ſubſtance beyond either, there muſt alſo be knovvledge above either. Secondly, God created him a good Angel; and although, like man, he loſt much by his fall, yet thirdly by his long obſervations, and continuall experience, he hath as it vvere made up the breach, or vvant of his created knovvledge, by acquired skill: and therefore, vvhen he hath *commiſſion, he can upon occaſion vvork ſtrange vvonders. As for example, nothing more familiar or common in *Lapland Lituania*, and all over *Scandia*, as alſo in *Tartaria*, then to ſell vvinds to mariners, and cauſe tempeſts; vvhich the vvitches and ſorcerers there procure by the help and povver of the devil: vvherein he ſhevveth himſelf, according to his * title, *Prince of the aire.*

How it comes to paſſe that the devil's knowledge is farre beyond mans.

Matth. 8. 31. Job. 1. 12.

*Saxo Grammat. Olaus magnus.

* Epheſ. 2. 2.

Wherefore (as I ſaid) I do not doubt, but that many ſuch as the former ſtrange prodigies, eſpecially long ago in heathen times, and amongſt heathen people, vvere procured by his povver. For vvhat did the magicians in the ſight of Pharaoh, but as it vvere rain frogs, and turn the vvaters into bloud, although Moſes and Aaron vvere by?

Exod. cap. 7. & 8.

Beſides, it is apparent that in the little vvorld, I mean vvhen parties are poſſeſſed, the devil can cauſe them to vomit ſtrange things out of their mouthes and ſtomachs; as crooked pins, iron, coals, nails, brimſtone, needles, lead, vvax, hair, ſtravv, live eels, and the like; of vvhich many have been eye-vvitneſſes, confirming the ſame for truth. All vvhich, he can as vvell & eaſily perform in the greater vvorld; cauſing the aire to ſpit, and the clouds to

vomit (for his ovvn advantage) most strange and prodigious things.

Zanchius his opinion vvas not much differing: for, speaking of strange rains, * he confessed (concerning some of them) that they vvere produced by such causes, or the like, as I before alledged; concluding for the rest vvhich vvere more occult, that they vvere truly prodigious; and caused, either by the povver of God, as portenders of his vvrath; or else by the sleights of the devil, through Gods permission.

Senth (inquit) tales pluvias verè prodigiosas esse, & fieri aut solâ Dei potentiâ, eoque iram Dei portẽdere; qualis fuit illa cùm pluit sulphure & ign supra Sodomam, & alias urbes: aut etiam dæmonum præstigiis, Deo permittente fieri. Zanch. Tom. 3. lib. 3. cap. 5. quæst. 6. Thes. 3.

Artic. 2.
Of Dew.

DEvv offers it self in the next place, as being a near kinsman to rain. For it consisteth of a cold moist vapour vvhich the sunne dravveth into the aire: from vvhence, vvhen it is somevvhat thickened and condensed through cold of the night, and also of the place vvhither the sun exhaled it, it falleth dovvn in very small and indiscernible drops, to the great refreshment of the earth.

Why dew is but in the morning, and at evening.

And this is certain, that the morning and the evening are the onely times vvhen it falleth; the reason being in regard of the sunne, vvhich both positively & privatively causeth it. Devv at night is caused privatively: devv in the morning, positively. At night or in the evening privatively, because vvhen the sunne setteth, the lovvest part of the vapour not being high enough to hang in the aire, falleth dovvn through absence of the sunne. And in the morning positively, because at the return of the sunne the residue of the vapour, together vvith the augmentation of it (haply by some condensed aire caused by cold of the night) is dissolved by his approching beams, and so made fit to fall, rather then hang any longer. For look vvhat vapours are about the Horizon at the rising of the sunne are dispersed by his first approch; and so it comes

to

to paſſe that the morning as well as the evening affordeth dew. But know that if the vapour be not conveniently placed, that is, if it be very high above the Horizon, or in a loftie ſtation of the aire, then the ſunnes approching beam neither diſſolveth nor diſperſeth it; whereupon we have no dew, but rather look for rain, becauſe the matter of dew is ſtill in the aire, ſtaying there till it be turned into a cloud, and ſo into rain.

Why no dew is a ſigne of rain.

And now by this you may ſee what is the materiall, what the efficient, what the formall, and laſtly, what the finall cauſe of dew.

The materiall cauſe is a ſubtill and moiſt vapour, being the thinneſt of all vapours.

The efficient cauſe is the temperate cold of the night, together with the abſence and approch of the ſunne.

The formall cauſe is the ſprinkling of moſt thin drops, which the hand can ſcarcely perceive.

And the finall cauſe, that (without rain) the earth may have ſome refreſhment.

Yet nevertheleſſe, this I find concerning dew, as it is of a calorificall nature, that * *rorilentas ſegetes collectas putrefacit*, becauſe every externall heat is putrefactive.

* *Tiraln. Phyſ. lib. 6. cap. 6.*

Alſo dew is a great enemie to ſheep, begetting a deadly rot in them, or a dangerous flux of the bellie; which cometh to paſſe in regard of the humour being of much viſcoſity, and not throughly refined or purged. Wherefore your carefull and skilfull ſhepherds will never drive out their ſheep to feed, untill the ſunne or the wind have licked the tops of the graſſe and flowers.

How ſheep may get a deadly flux.

Alſo know that a windie night hindereth the falling of dew. Some ſay three things hinder it; *viz.* wind, great heat, and cold: for the moſt temperate and calm times afford it; when other times want it.

Hinderers of dew.

As for the kinds of dew, I cannot but joyn with them who divide them into three.

Three kinds of dew.

For there is, firſt, common dew; ſecondly, ſweet dew; and thirdly, bitter blaſting dew.

The common dew is ordinary.

Sweet dew is threefold. 1. *Manna.* 2. *Mel.* 3. *Ladanum.*

Manna.

Manna is ſaid to be white like ſugar: by ſome it is called *Cœli ſudor.* The matter of it is a fat and pure vapour, not tainted with any putrid or corrupt Exhalations. Or, according to ſome, it is *roris melliti genus, ſed concreti*, a kind of hony-ſweet dew, but concrete or compact more cloſe together: it falleth in the Eaſt parts, *Arabia, Syria*, &c.

Of the Iſraelites Manna.

As for that *Manna* which God rained to the Iſraelites in the wilderneſſe, ſome think that it was altogether miraculous; others that it was *ejuſdē ſpeciei cum Manna vulgari*, of the ſame kind with common Manna, which I alſo think; becauſe *Joſephus*, in his third book and firſt chapter, writeth, that in his dayes there was great ſtore of it in that part of Arabia wherein Moſes was 40 years with the Iſraelites. What ſhould hinder this opinion, I ſee not, unleſſe becauſe the common Manna is of a purging qualitie, and therefore to be taken for a medicine rather then for food. To which I * find an anſwer, that haply at the firſt it might work the like effect on their bodies alſo, till it expelled the humours proceeding from the onyons and leeks that they eat in Egypt: but afterwards through cuſtome it might not work at all upon them: or elſe God, for their good, that they might be fed, might allay that qualitie in it by his mighty power: for God reſting from all his works on the ſeventh day, created no new *ſpecies* of any thing afterwards. *Fuchſius*, a learned Phyſician, teſtifieth that there falleth great ſtore of Manna upon the mountain of *Libanus*, which is eaten without harm, although they take it in plentifull abundance. Yet nevertheleſſe it cannot be denied but

* Bonfrerius on Exod.

that

that the Israelites had many things miraculous in theirs: as that they could not find it on the Sabbath day: that he which gathered little, and he which gathered much, had alwayes sufficient for his eating; and the like: All which proclaimed the power of God: in which regard he saith that he fed them with *Angels food. Not that the Angels eat of it; but because it was *cibus excellentissimus*, a most excellent kind of meat; insomuch that were the Angels to be fed with bread, they might be fed with this. In which sense, we also call that which is daintie meat, meat for a King, or a Prince, intimating the goodnesse of it: So also the Poets called their * *Myrrhina* or their *Nectar*, the drink of the Gods, because it was a liquour of such excellencie. But besides this, the Scripture in like manner saith that it was bread from heaven, as well as Angels food. Not that it came from heaven, if heaven be taken in a strict sense; but because it was a symbole of Christs descending from heaven, as it is John the 6. *Moses gave you not that bread* (saith our Saviour) *but I am that bread of life come down from heaven.* Or else it is said to come from heaven, because it came out of the aire: for so the word signifying heaven is often used; as the fowls of the aire are said to flie in the open firmament of heaven, Gen. 1. 20. The clouds are called the clouds of heaven: and the winds, the winds of heaven, although they be but in the aire, Dan. 7. And thus much concerning *Manna.*

The Israelites. Manna was not without miracle in many respects.

* Psal. 78. 25. 26. How Manna is said to be Angels food.

* *Myrrhina* is a wine mixed with Myrrhe and other sweet spices.

How Manna is said to come from heaven.

The other kind of sweet dew is *Mel*, or an *Hony-dew.* Now this falleth, not onely in other countreys, but also here in England; and we cannot give it a more significant name then a *Mel-dew*, being both as sweet, and also of the same substance that honie is. Some suppose that it is drawn out of sweet herbs and flowers, which I also believe, acknowledging that there is a kind of resudation of juice proceeding from them at a certain

Hony-dew.

convenient time of their growth: which juice is either drawn up as a vapour, and ſo ſweeteneth the dew in the aire by ſuch time as it falleth; or elſe, iſſuing of it ſelf from the ſaid flowers and plants, but not aſcending, it ſweeteneth the dew after it is come down or fallen on them, although the ſaid dew be but ordinary: for when ordinary dew falleth upon any of thoſe leaves which yield ſuch a reſudation or ſweat, it cannot but be ſweetened, although none of the ſweet liquour be drawn into the aire as a vapour with it. Now of theſe two chooſe which in your judgement is the moſt probable.

*Lib. 11. cap. 12.
*It riſeth with *Sol* about the end of July.
*which is about the 17 day of April.

* *Plinie* witneſſeth that theſe dews are moſt common at the ſhining of *Syrius*, or the great *Dog-ſtarre*; & that before the riſing of *Virgilie* or the *Seven ſtarres* in the morning with the Sunne, they cannot at all be.

Ladanum, the third kind of ſweet dew.
*Plin. lib. 12. cap. 17.

Ladanum is another kind of ſweet dew, *Arabia* hath great plentie of it, and no other countrey (as *Plinie* writeth) unleſſe it be *Nabathea*, bordering on the Arabick coaſt of *Syria*.

It is called *Ladanum*, becauſe it is a vapour falling upon the herb *Ladon* or *Ledum*; and is ſweetened by the juice iſſuing from the leaves of the ſaid herb, mixing it ſelf with the vapour. Goats hairs are often found amongſt it; becauſe the Goat feeding upon that herb ſcattereth ſome of his hairs, which are incorporated with the vapour and the juice of *Ladon*, whileſt like gumme it is hardened by the Sunne.

And thus much of ſweet dewes.

Blaſting dew.

Novv followeth that vvhich I called bitter *blaſting dew*. The Germanes ſay it it *Mildaw*; vvhich is an improper name if it hath relation to that vvhich vve call *Mel-dew*. For *Mel-dew* (as before I ſhevved) is an hony-ſvveet devv, and not a bitter devv. This therefore may be rather named *Ros noxius*, or bitter blaſting devv, becauſe it hurteth and killeth ſuch herbs and

* *Magir. Phyſ. Com. lib. 4. cap. 6*

plants

plants as it falleth on, and ſticketh or cleaveth to. This vapour hath much earthly matter in it, and therefore it remaineth white when the moiſture is gone. It is alſo corrupted: which comes to paſſe (as 'tis conjectured) through the often change of the aire, which being tainted or infected through varietie of differing Exhalations, ſendeth down noyſome and unwholeſome dews, falling ſometimes even in the day time it ſelf. And here an end concerning dew.

Artic. 4.
Of white hoar-froſts.

I Come now to ſpeak of Froſts: for as dew claimed kindred of rain, ſo white hoar-froſt is of the houſe and linage of dew: As for example thus. When a vapour drawn into the aire is congealed before it can be turned into dew, then we have *Pruina* in ſtead thereof, or a white hoar-froſt: ſo that ſuch a froſt is nothing elſe but dew congealed by overmuch cold. * *Ariſtotle* affirmeth the like, ſhewing among other things, that both in reſpect of matter, and place of generation, they do well agree; to which is alſo pertinent the calmneſſe, clearneſſe, and quietneſſe of the time wherein either of them falleth. For both of them conſiſt of ſubtill thin vapours, and are generated in the loweſt region of the aire, becauſe upon ſome high hills there is neither hoar-froſt nor dew to be ſeen; the vapour (as it ſeemeth) aſcendeth not ſo high: And as for a windie obſcure time, it is an enemie to them both. The difference being, that hoar-froſt is congealed in the vapour before it can be turned into water: The one cauſed in a ſeaſon that is temperately warm; the other when it is cold. The materiall cauſe therefore of hoar-froſt is a ſubtill thinne vapour. The formall, is the congealing

* *Lib. 1. de Mete. cap. 10.*

ing of it; by which it differeth from dew. The efficient is the autumnall or winter cold: for thoſe are the moſt common and ordinary times peculiar to it, although ſometimes it comes as an unwelcome gueſt in the ſpring and ſummer, when the aire through cold is forward to ſend it. And laſt of all the end, or principall effects (when it cometh not out of ſeaſon) or the finall cauſe, is the contraction, or ſhutting up of the pores or breathing holes of the earth, and about the roots of plants; that thereby their ſpirits, being the chariots of heat, may be contained in their own bowels for the good of ſuch things as they give life unto. And thus much concerning froſt.

Artic. 5.
Of Snow.

THere is no great difference between the matter of ſnow, and matter of rain and hail; excepting (as ſome think) that the vapour for ſnow is of an hotter qualitie then the vapour for rain, and yet not ſo hot as that which is the materiall cauſe of hail. For it is a tenet amongſt Philoſophers, that hot things being cooled are apter for congelation then cold: as is ſeen in warm water taken from the fire, which will more ſuddenly and throughly be frozen then that which never felt the heat. And this comes to paſſe in regard of the pores or paſſages made into the water through heat: into which the cold entring, it both cooleth it the ſooner, and congealeth it the more.

Hot things cooled are ſooneſt congeal'ed.

Neither is there any difference between white froſt and ſnow; excepting that froſt is made of a vapour before it be turned into a cloud; and ſnow of a cloud before it can be turned into water.

Ariſt. Met. lib. 1. cap. 11.

Snow therefore is a cloud congealed by great cold, before it be perfectly reſolved from vapours into water.

The matter of ſnow.

For

For if it should come to the densitie of water before the congelation, then it could not fall so like locks of wooll as it doth; but would be more closely compacted or joyned together, having little or no spunginesse in it.

As for the whitenesse, it proceedeth not from its own proper colour, but rather in respect of those parts which are more aierie then the rest: whereupon I find some *Authours who determine the case thus; namely, that the white is by receiving the light into it at those many small parts; even as in froth and fome is seen. For, say some, * *Nix est spuma quadã. Snow is a kind of froth*: & when it loseth part of its frothie nature, and begins to melt, it loseth also part of that whitenesse which at the first it retained. To this also may be added the coldnesse that is infused into it when it is congealed, as being a cause of whitenesse; even as in phlegmatick bodies and cold countreys may be seen: For such people are alwayes whiter of complexion then others; cold being the cause of that their whitenesse.

Why snow is white.

*Fulks Meteors.

* *Haverent com in Arist. de Met. lib. 1.*

Such winters as are void of snovv, are not so good for the fruits of the ground, as more snovvie vvinters. Whereupon * *Plinie* affirmeth, that he vvhich saith clear vvinters are to be vvished, vvisheth no good for the trees and plants: and in that regard your experienced husbandman desireth that the vvinter may be cold and snovvie, rather then clear and vvarm: For besides this they also say, that a hot Christmas makes a fat Church-yard.

Warm winters hurtfull.

* *Lib. 17. cap. 2.*

Wherefore, to see the earth do penance in a cold vvhite sheet, & the vvoods hang perivvigd vvith vvooll, bending their boughs in token of thankfulnesse to gray-hair'd *Hyems* for their safetie from the cold, is a sight both vvished & vvelcome: the good vvhereof vvill shevv it self, vvhen liberall Nature, out of her bounteous vvardrobe, bestovvs more beauteous raiment on them.

And note it is found by experience, that it may snovv on

One and the ſame cloud may give the mountains ſnow, and the valleys rain.

on the mountains, and rain in the valleys, and yet both come out of one and the ſame cloud; which comes to paſſe for this reaſon, becauſe the ſnow coming from the middle Region melteth after it comes into the loweſt Region: for here is alwayes more heat then above where the ſnow is generated; yet not alwayes heat enough to melt the ſnow as it falleth; neither will the congelation be alwayes ſo weak as to ſuffer it. And thus alſo it comes to paſſe that we have ſometimes ſleet, which is ſnow and rain together.

The reaſon of ſleet.

Cryſtall. * Fulk. Met.

Moreover (as ſome affirm) Cryſtall is made of ſnow: for *when the ſnow melteth upon the tops of high hills, and is afterwards frozen again, it then becometh ſo hard that it is a ſtone, and no other then that which we call Cryſtall.

Artic. 6.
Of Hail.

HAil is ſaid to be engendred of rain being congealed into ice, the drops freezing preſently after the diſſolving of the cloud.

Or (as ſome ſay) a cloud reſolved into water, in the fall congealed, maketh hail.

Ariſtotle aſſenteth to the ſame, affirming that the materiall near cauſe is rain; the remote a cloud; the efficient an *Antiperiſtaſis*, or a mutuall adverſe ſtrife between cold and heat; as in the firſt book of his Meteors, at the 12 chapter, may be ſeen: affirming moreover that the precedent heat of the water whereof it is made, helpeth to the ſpeedie concretion of it: being agreeable to that which I ſaid before concerning ſnow; namely that it conſiſted of a warmer vapour then rain, and yet not of one ſo warm as that from whence hail proceedeth.

Whereupon I think we may make this a concluſion concerning

concerning hail, and ſay that it is an hot vapour drawn into the middle Region of the aire; vvhere, by cold of that Region, it is made thick into a cloud, which falling down in drops like rain is preſently met withall and encountered by the ſudden cold of the loweſt Region, and ſo congealed into a kind of ice. Now this ſudden cold thus meeting with it, is in the higheſt part of the loweſt Region, and cauſed by an *Antiperiſtaſis* of heat from below, which forceth up the cold to the greater augmentation of it; and ſo (becauſe the vapour it ſelf at the firſt vvas alſo vvarm) it doth very ſpeedily turn it into ice: for ſeeing (as hath been ſaid) it vvas formerly vvarm, it is the ſooner cooled; becauſe heat having made it thin, and full of paſſages, gives leave to the cold, both to pierce it more ſuddenly, and alſo more ſoundly. And this moſt commonly is the manner of generating hail.

What hail is.

But knovv that hail may ſometimes alſo be made in the middle Region; & then it is vvithout an *Antiperiſtaſis*: of vvhich ſort for the moſt part is that ſmall & ſpungie hail falling in vvinter, vvhen there is no ſuch heat in any part of the aire, by vvhoſe *Antiperiſtaſis* it may be congealed. For ſeeing the drops are ſcarcely come to the denſitie of vvater before their congelation, as alſo ſeeing they are ſomething ſvvollen through the ſpirit of the Exhalation, they appear not onely round, but alſo light, and hollovv, or of a ſpungie ſubſtance, little differing from the matter of ſnovv, being generated in the middle Region as vvell as this kind of hail. And thus comes hail in vvinter.

Winter-hail how and where it is made.

But at other times of the yeare, the hail being more ſtonie, or better hardened it may vvell be cauſed by an *Antiperiſtaſis* proceeding from the heat of this lovveſt Region, vvhich ſendeth up, impriſons, and augments the cold above it.

And knovv that hail-ſtones are not alvvayes of one & the

The ſundry faſhions of hail-ſtones.

the ſame bigneſſe, but are variable according to the quantitie of the drops whereof they be made; the cauſe whereof is their propinquitie or remoteneſſe from the earth, as was ſhewed before concerning the different drops of rain. And for the moſt part, know that they be alſo round, becauſe the drop is ſo. Yet nevertheleſſe they be ſometimes knotted and piked with many corners; or elſe faſhioned like a *Pyramis*: the laſt of which ſhapes proceedeth from the ſpirit of the vapour which aſcendeth to the top of the drop ſo ſoon as the loweſt part of it toucheth the congealing cold; and ſo aſcending, it makes it ſmaller above then below. And as for the triangled, knottie, or many-cornered ſhapes, they are cauſed thus, *viz.* when many are ſuddenly congealed and frozen into one.

Note alſo, that ſometimes little ſtraws, or light chaffie ſtuff, is found within the ſtones; coming thus to paſſe, becauſe they were at the firſt blown up from the earth by the wind, and mixed with the vapour.

And again know that ſometimes you may ſee hail-ſtones all icie and clear without, having within them (as their centre) little white round ſpungie parts. The reaſon of which is, becauſe thoſe white ones within were generated in the middle Region: but in their fall juſtling themſelves againſt the drops of rain which uncongealed came from the ſame cloud, they gat a waterie ſubſtance on their outſides, which being frozen to them looketh clear like ice; and ſo makes the whole conglomeration appear in the ſhape and faſhion before mentioned.

Hail doth many times much hurt.

Moreover, it hath not ſeldome been that hail hath done much hurt. Yet evermore the greateſt fear is whileſt the ripe corn ſtandeth in the eare. For a violent ſtorm of hail threſheth it ſo throughly, that turning the words a little, we may truely ſay, *Illa ſeges demum votis non reſpondet*

reſpondet avari agricola. Such a ſtorm was felt in many parts of this kingdome not long ago, namely in the yeare 1631; which, about the beginning of harveſt (beſide the harm it did to other things) untimely beat out much corn in the fields to the great damage of many people. And at ſundry other times alſo heretofore the like ſad accidents have been. Wherefore the ancient husbandmen amongſt the heathen (as *Cato* and *Plinie* mention) had certain charming verſes to keep hail and other dreadfull calamities from their fields: in which they ſhewed themſelves of a like mind unto thoſe deviliſh enchanting hags, who made the Poet ſing, *Carmina vel cœlo poſſunt deducere Lunam*, Charms can pull even the very Moon out of heaven. But this was not all: For beſide theſe, *Palladius* alſo makes mention of others who would take the skins of Crocodiles, Hyena's, or Sea-calves, and lay them here and there about their grounds; or elſe have a bloudie Ax lifted up in threatning manner againſt the heavens; or an Owl ſet ſtaring up, with her feathers ſpread abroad. All which are but magicall, deviliſh, and abſurd practiſes; ſuch as even an old doting woman (whoſe confidence is the ſheers and the ſieve) cannot but acknowledge to be void of any the leaſt ſhew of reaſon: fit therefore for heathens onely, and not for Chriſtians. For let Chriſtians know that there is a God above, who can better ſecure their ſeed ſowen then all thoſe magick ſpells and fooliſh ſopperies. For,* *A fruitfull land he maketh barren becauſe of the wickednes of thoſe who dwell therein.* Or, as it is in the 28 of Deuteronomie, *If thou ſhalt hearken diligently unto the voice of the Lord thy God, to obſerve and to do all his commandments, &c. then ſhalt thou be bleſſed in the citie, and in the field. Bleſſed ſhall be the fruit of thy body and the fruit of thy ground. But if thou wilt not hearken unto the voice of the Lord thy God, curſed ſhalt thou be in the citie, and curſed in the*

How the heathen uſed to ſecure their fields from hail and other harms.

*Pſal. 107. 34. 33.

the field. Curſed ſhall be thy basket and thy ſtore. Yea and curſed ſhall be the fruit of thy body, and the fruit of thy land.

Charms unlawfull.

Beſide, adde unto this the danger of deviliſh practiſes, with the unlawfulneſſe of charms and incantations. For thus again the Scripture ſpeaketh, *There ſhall none ſuch be found among you. For all that do theſe things are an abomination to the Lord*; as it is Deuteronomie 18. at the 10, 11, and 12 verſes.

Here then I end this diſcourſe concerning hail, and now proceed to ſpeak of miſts.

Artic. 7.
Of Miſts.

CONcerning which, I like their diviſion beſt who make two kinds of miſt; the one aſcending, the other deſcending.

That which aſcendeth (ſaith Dr *Fulk*) goeth up out of the water or earth as ſmoke, but ſeldome ſpreads it ſelf any thing farre; being moſt of all ſeen about rivers and moiſt places.

The other (ſaith he) namely that which goeth down towards the earth, is when any vapour is lifted up into the aire by heat of the Sunne, which, not being ſtrong enough to draw it ſo high that the cold may knit it, ſuffereth it to fall down again after it is a little made thick; and ſo it filleth all the aire with groſſe vapours, obſcuring the Sunne from ſhining on us.

The diſcending miſt is twofold.

Now this laſt kind of miſt may be twofold; either congealed, or incongealed. That which is congealed comes near to the nature of that matter whereof white froſts conſiſt; and is never but in a very cold time: it often alſo ſtinketh, which perhaps comes to paſſe in that the matter whereof it is made was drawn out of lakes, or other muddie and ſtinking places. Or thus; the matter

Why miſts and fogs ſtink.

ter of this miſt hath much earthy ſubſtance in it, which the hindering cold ſuffereth not to be conſumed: and from this comes an unpleaſant and an unwholeſome ſmell. This water, as alſo the water of diſſolved froſt, is very bad for cattell to drink: for it will quickly rot them. Neither can it be good for any one to walk abroad in ſuch a miſtie time: For, by breathing, we draw this unwholeſome vapour into our bodies, and ſo corrupt our lungs extreamly.

A rot for cattell, and an harm to men.

But for incongealed miſts, they are in warmer and more temperate ſeaſons, coming near the nature of that matter which is the matter of dew. Some call it a ſterill vapour hanging near the earth, being neither moiſt enough to drop like rain, nor yet hot enough to be carried up on high into the aire. Yet as ſterill as it is, ſometimes we find that it is but the forerunner of rain: For when it departeth, if it aſcendeth, then rain followeth; if it deſcendeth, then expect a hot and fair day. And here an end concerning miſts.

How by a miſt, to judge of the weather.

Artic. 8.

Of our Ladies threads, or thoſe things which fly up and down the aire like ſpiders webs.

FOr mine own part I muſt confeſſe I have not ſeen many who have writ any thing concerning this cobweb-like kind of Meteor: and therefore at the firſt I reſted doubtfull, not knowing whether it were beſt for me to ſpeak any thing of it or no. But at the laſt finding that ſome falſe tenets were engrafted amongſt the ignorant, as if they perfectly knew what thing it was, I thought good to adde ſomething whereby their fond opinion might be taken away, who, as in a dream, ſuppoſe it to be ſpunne from out the ſpiders

bowels: which cannot but be a ſtrange abſurditie. For it is evident that ſome one of theſe threads containeth more matter then many ſpiders; their bodies not being big enough to afford a thing ſo copious: neither are their webs at any time of ſuch a length, or their threads of ſuch a thickneſſe, as theſe thus flying about the aire.

This Meteor therefore (ſince it is a Meteor) may rightly be ſuppoſed to proceed out of a through-boyled or digeſted vapour, being mixed with earthy and ſlimie Exhalations: and, although it be no ſpiders web, yet the temperature of it little differeth from that viſcuous humour and ſlimie * excrement which they in their ſpinning ſend out from them.

* And that's the reaſon why (when it hangs on the ſtubble, or the like places) we ſee ſo many little ſpiders buſie in it: for the matter doth as it were feed them, and (perhaps) through the Sunbeams, generate them.

As for the time, it appeareth neither in Summer nor in Winter, but in the Spring and Autumne; becauſe it requireth a temperate heat and temperate drineſſe. Yet the chief time is Autumne, becauſe the Aire hath then ſome drie relicks of the late Summers Exhalations left, and they are very neceſſary towards the tempering and generation of this Meteor.

And thus I end, not onely this Article, but the whole Paragraph alſo; coming at length to ſpeak of that third kind of Meteor which in the beginning I propounded to be handled laſt.

Sect. 2. Parag. 7.

Of Aiery Meteors; wherein is ſhewed the naturall cauſe of winds.

Artic. 1.

Of the divers opinions concerning wind.

IN the former Paragraphs and Articles pertinent to the ſecond Section of this chapter, I ſpoke at large (as is apparent) of every ſort, both of fierie and waterie Meteors:

Meteors: novv therefore (if you please) you may go along vvith me to those which are called aierie; wherein I purpose to speak concerning the generation of winds, shewing upon what causes they depend. And by the way I would have you observe a packet of opinions which have been posted to and fro as if they vvere pertinent to the purpose.

1. For some in the first place may be found, who immediately referre the motion and generation of winds unto God, because the winds are said to be brought out of his treasures, as you may reade, Psal. 135. 7. And in the 4. of Amos, at the 13 verse, *He formeth the mountains, and createth the winds.* The first opinion.

To which I make this answer, that they who send us, concerning these and the like things, to God and to his decree in nature, or to the might of his power, have said indeed that which is primarily true, but not shevved how it is secondarily effected. For although concerning some things extraordinary, the cause be hid; yet such as be ordinary are not vvrought by the first cause vvithout an administration of the second. As for example, God is not onely said to bring the winds out of his * treasures, but also to send forth the lightnings vvith the rain; as it is in the forenamed Psalme: yet neverthelesse the Prophet Jeremie sheweth that these are vvrought, not immediately, but mediately, by the help of secondary causes; as in Jer. 10. 13. *He causeth the vapours to ascend from the ends of the earth.* By vvhich it appeareth that he maketh not the rain vvithout them, but of them; those ascending vapours being the matter of rain. And again; * *The day is thine, and the night is thine: thou hast made summer & winter*; as in the Psalmist. Yet neverthelesse we know that the day and the night, together vvith the seasons of the yeare, are not made but by the motion of the sunne and starres; as it is in Genesis 1. 14. Answer.

* *Dum dicit, Deum producere ventos de thesauris suis, hoc tantùm innuit, ventorum materiam & exhalationem in terra tanquam thesauro inclusam esse, unde Deus ventos producit per causas intermedias & naturales, quæ sunt calor solis & terra. Havenreut.*

* Psal. 74. 17. 18.

A ſecond opinion.

2. Wherefore in the ſecond place, ſeeing God worketh theſe things by means, the motion of the vvinds is attributed to the Angels, it being ſuppoſed that inſtrumentally they perform Gods will in this, cauſing the vvinds to blow, &c. Whereupon the Pſalmiſt is again alledged, ſhewing that the * clouds are Gods divine chariot; the horſes carrying it are the * vvinds; the coachmen are the * Angels, vvhom God calleth Cherubims; and his darts are hot * thunder-bolts, vvhich he caſteth from the clouds. And furthermore, that Angels cauſe the winds, S. John declares it alſo, Revel. 7. 1. affirming that he ſaw foure Angels ſtanding upon the foure corners of the earth, holding the winds that they ſhould not blow. The Angels therefore move the vvinds.

* Pſal. 104. 3.
* *Ibid.*
* Pſal. 18. 10.
* *Ibid.* verſ. 14.

Anſwer.

To vvhich again it is anſwered, that neither is this opinion ſound.

For firſt, concerning the Pſalmiſt, what doth that Prophet but in a figurative ſpeech expreſſe Gods ſvviftneſſe in coming to ſuccour him?

And ſecondly, for the foure Angels ſtanding upon the foure corners of the earth to keep the winds from blowing, I marvell that it can be taken ſo near a literall ſenſe.

Napeir, in his Comment upon the Revelation, confeſſeth that the Jevvs indeed have certain books of antiquitie, dividing the government of the earth among foure great Angels, and under them they imagine to be many inferiour ones. But he withall acknowledgeth that they are aſſertions more curious then certain. And therefore he underſtandeth by theſe foure Angels, the good Angels of God; and the foure vvinds he expoundeth to be the ſpirits of Satan, and executours of vengeance. For in a figurative ſenſe, theſe and the like things are to be taken.

Beſides, the irregularitie of the winds, turning ſometimes

times three or foure times in a day, doth ſufficiently ſhevv (as it is elſevvhere witneſſed by another Authour) that they are not immediately governed by any intellectuall ſubſtance; for in their actions you may obſerve a greater conſtancie, and more certain law.

3. Wherefore leaving this opinion alſo, I come to a third; vvherein I find that vvind is nothing elſe but the flowing and reflovving, or motion of the aire, having no other materiall ſubſtance then the very thin aire it ſelf. A third opinion.

To which it may be anſvvered, that this opinion, although better then the former, cannot float farre before it ſink, and will therefore drown him in an errour vvho ſticketh to it. For, as * *Ariſtotle* teſtifieth, vve fall into other abſurdities upon the admittance of this tenet; (or elſe vve diſſent from them vvho maintained it of old) imagining thus, that vvhen the aire is compelled to move, vve have vvind; vvhen it ſtandeth ſtill, it is thickened into a cloud; vvhen it raineth, it is condenſed into vvater: all vvhich is very idle. Anſwer. * *Meteor. lib. 1. cap. 13.*

For furthermore, if the vvind vvere nothing elſe but the motion of the aire, then it vvould neceſſarily follovv that all and every aire moved ſhould be vvind: but all and every moved aire is not vvind: therefore vvind is more then the moved aire. Wind is more then the motion of the aire.

Havenreuter, in his Comment upon *Ariſtotles* Meteors, proveth the aſſumption by this ſimilitude. Even as every flovving vvater (ſaith he) although there be great plentie of it, cannot be called a river, but that onely vvhich ariſeth from a fountain, or hath ſome certain beginning of fluxion: ſo alſo, not all and every aire, moved by one kind of means or other, can be called vvind, but that onely vvhich is as it vvere derived from ſome beginning or fountain. As for example, the aire vvhich is turned about by the heavens, is moved, yet it vvas never call-

ed wind. And again, in a bloudie bulleting fight, the aire is forced and ſtirred by the thundring ſound of gunnes, and yet no wind is raiſed by it.

Beſides, make wind to be nothing elſe but the moving of the aire, and then there can be no ſufficient reaſon given why we ſhould have greater plentie of winds at one time then at another; nor yet why they ſhould blow from this point or corner, rather then from that. In which regard they alſo are confuted who ſuppoſe that the motion of the heavens moveth the winds: for if they were moved by the heavens, then the wind muſt blow alwayes one way, and never turn into a differing corner. But it followeth.

Another opinion.

Another opinion (and this is the laſt that I mean to mention) maintaineth that the winds do actually reſide ſomewhere, and are ſhut up as in a priſon, from whence they have ſometimes libertie for a while, but at length they retire, & betake themſelves to their dennes or cave again. This the Poets aimed at, when they *made *Æolus* the God of the winds, affirming that he kept them cloſe, or let them looſe at his pleaſure. Whereupon *Homer* may be remembred, who brings in *Ulyſſes* ſpeaking of the ſaid *Æolus* thus: —*But he gave me* (ſaith he) *an hollow bottle or leather bag, made of the skin of a nine-yeareold ox, in which he bound the blasts of the ſtormie tempeſtuous winds.* Or as * *Ovid* ſpeaks of *Jupiter*, who had a commanding power over all the other Gods;

Protinus Æoliis Aquilonem claudit in antris,
Emittitque Notum; madidis Notus evolat alis.
He forthwith ſhut the Northern wind
within Æolus den;
And looſe he lets the Southern wind,
which flies with moiſtned pen.

Now this laſt opinion, although the Poets have turned it into a fiction, is not ſo bad as it ſeems to be. For take all

* The reaſon of which fiction was, becauſe the clouds and miſts riſing about the ſeven Æolian Iſlands of which he was king, did alwayes portend great ſtore of winds.

* *Metamy. lib. 1.*

all *cum grano ſalis*, as is ſaid, and then it will appear that the wind is in ſome ſort ſhut as within a den; and although not looſed by *Æolus*, yet by *Helios*: for *Helios* (which is the Sunne) doth indeed help to let it looſe from out the bowels of the earth; drawing it into the aire, and above the ground; where we may feel it fanne our faces: ſometimes churliſhly, as if it were angry; ſometimes gently, as if it were pleaſed. But of the ſeverall kinds of blaſts I ſhall ſpeak afterwards; and therefore let them now reſt untill I meet them.

Artic. 2.

What Wind is; upon what cauſes it dependeth; and how it is moved.

FRom the falſehood of the former opinions I come to declare the truth concerning the generation of winds; affirming that winds are generated by virtue of the Sunne, which cauſeth an hot and drie Exhalation to be evaporated, or aſpired out of the earth. Unto which * ſome adde the power and operation of certain ſubterranean fires, which are as an antecedent cauſe, or *cauſa προηγουμένη* of the ſaid windie exhalations: yet ſo, as being come near to the *ſuperficies* of the earth, the Sunne provokes or ſtirres them up to come abroad, being therein *cauſa προηγουμένη* or the moving cauſe: for the Sunne, as a porter, rarifies the *ſuperficies* of the earth, and thereby openeth the pores and paſſages of it, through which the matter of wind comes forth, and flyeth ſidelong over the face of the earth. And if at any time it happen that theſe exhalations can have no way made them, but are kept cloſe priſoners; they then (by ſtriving to get out) ſhake the earth which makes ſad mortals always fear, ſometimes ſuffer, and not ſeldome wonder.

* Lyd. *de orig. font. cap.* 3.

The cauſe and effects of an earthquake.

Wherefore wind may be thus defined; namely that

The definition of wind.

it is a certain plentie of hot and drie exhalations void of pinguid matter; which being partly aſpired, and partly exhaled out of the earth, are driven about it, leſt the aire ſhould be corrupted.

* *Met. lib.* 2. *cap.* 4.

The matter then, we ſee, muſt be an exhalation. The quantitie of it muſt be copious: and ſo * *Ariſtotle* alſo witneſſeth; affirming that in the generation of winds, there is a concourſe of many exhalations, by little and little begetting a large maſſe of matter. The qualitie of which matter muſt be hot and drie, not mixed with any fattie ſubſtance: for if it were of a pinguid nature, then it would be enflamed like lightning; ſeeing lightning is an hot and drie exhalation and like unto this, ſave onely that it containeth great plentie of fattie matter, ſuch as is not amongſt the matter of wind.

Why it uſeth to rain when the wind is down.

Unto which adde this obſervation, that a mere earthie exhalation is never the whole matter of wind. For it draweth up many mixed vapours with it, as may be ſeen if we call to mind the ſtorms and ſhowers which often happen upon the allaying of a wind. For that part of the exhalation which is more moiſt and vaporous then the reſt, is thickened and condenſed into a rainie cloud, whileſt the other is either drawn high into the upper Region, or elſe quite waſted diſperſed and conſumed.

The aire moved augment, the wind.

Alſo know that the aire may increaſe and augment the exhalation after the motion is begun, and ſo the blaſt ſeemeth the greater. For the exhalation cannot but drive ſome part of the aire before it; then followeth other ſome after it, leſt there ſhould be *vacuum*.

And furthermore; in that I aſſent to a twofold efficient cauſe of wind, *viz.* the beams of the ſunne attracting, and alſo ſome certain ſubterranean fires expelling, it is not without reaſon: for it evidently appeareth when the ſunne hath either little or no force to draw up

up an exhalation, that then we have often great blaſts; as thoſe Northern winds in winter, and boiſterous blaſts, which happen in the night above our Horizon, when the ſunne is under it. And unto this may be alſo added the ſecret influence of the Planets, who being in ſuch or ſuch a poſition do powerfully cauſe the earth to afford the aire great ſtore of windie exhalations. As for example: the aſpect of *Jupiter* (eſpecially his conjunction) with the ſunne, cauſeth great vvinds; producing alſo (as they may be placed) thunder and hail, as vvell as fair vveather. And as for *Mercury*, if he be aſpected either vvith the ſun, moon, or *Jupiter*, in *Gemini*, *Libra*, or *Aquarius*, it is evermore an infallible ſigne of vvind; unleſſe there be ſome other generall and more povverfull influence to croſſe it: for, as ſome have found it, generall influences may hinder thoſe vvhich are particular.

How the winds are moved, and by what.

But come novv to the motion of vvinds. I ſaid before in their definition, that they vvere driven about the earth: and now it may be demanded how that motion is, and from vvhence it proceedeth.

Their motion is a laterall or ſidelong motion, cauſed through the aſpiring of the exhalation and detruſion of the aire. For the exhalation is hot and drie, and dravvn up by the attractive povver of the ſunne and other ſtars; vvhereupon, whileſt it tendeth towards the middle Region of the aire, it is beaten dovvn again through the coldneſſe and denſitie of that place: and ſo, vvith a refracted and disjoynted force, it is driven hither and thither, and not ſuffered to fly up, nor vvilling to fall dovvn in reſpect of the great levitie in it: and having as it vvere devided the contention betvveen both (*viz.* the cold of the aire, and heat of the exhalation) neither overcoming other; it flyeth, not directly up, nor directly down, but laterally or obliquely: for it is* held to be a kind of Axiome, that thoſe

* *Hum. nat. de Met. lib. 1. cap. 4.*

thoſe things which are moved partly by force, and partly naturally, move themſelves obliquely. By which reaſon lightning alſo, ſhooting ſtarres, and the like Meteors, fly not directly down, nor up; but ſidelong, as the wind: unleſſe it be, that when they conſiſt of Heterogenean parts, or parts of a divers kind (which ſome alſo attribute to the matter of winds) they then, through the ſtrife of thoſe their elevating and depreſſing parts, have a tranſverſe motion as before.

Where the motion of the wind beginneth.

The place from whence this motion of the winds beginneth, is from above.

Firſt, becauſe the motion muſt neceſſailry begin from that place whither the exhalation is carried, as is ſeen in a vapour turned to rain.

Secondly, becauſe all thoſe things which have great force, there, where they have their greateſt force, are not farre from their head or beginning of motion: but the winds have their greateſt force in places up on high: therefore there they begin their motion, as *Havenrenter* proveth.

Thirdly, know that the redneſſe of the skie, and all other viſible ſignes of wind, do declare that ſome ſpirits or windie breathings are above, which in ſhort time will be turned into blaſts. For redneſſe is a token of the aduſtion of exhalations in the aire: and the breaking of a circle about the moon from ſome one ſide or other, doth alſo ſhew the wind that is above, but not as yet come down unto us. The like alſo doth the ſwift motion of a ſingle cloud in a clear skie when we feel no blaſts below.

Beſides, the hot and drie exhalation we know is carried firſt upright, and cannot therefore move obliquely untill it be encountered: wherefore the motion beginneth in the aire above, and not in places here below.

Particular winds.

And yet ſome imagine that certain particular winds, which

which are known but onely in ſome countreys, have their immediate motion from out the caverns of the earth, without any aſcent into the skie: and this they prove, becauſe the blaſt bloweth not farre, but is like the wind that cometh out of a pair of bellows, ſtrong near the coming forth; but farre off, is not perceived.

Upon thought of which let it alſo be known, that the blowing of the wind ſometimes one way and ſometimes another way, dependeth upon no other cauſe then upon the ſituation of the place from whence the exhalation ariſeth: and that it is ſometimes ſtirred up one where, ſometimes another where, proceedeth from the operation of the heavens. Why the wind bloweth not alwayes one way.

Alſo know, that winds diametrally oppoſite cannot blow together under one and the ſame Horizon with a continued blaſt. For if they be of equall ſtrength, the one will be as powerfull as the other, and ſo not one give place to either. Or if their forces be unequall, then the one will over come the other, and ſo the conquered muſt upon neceſſity give place to the conquerour, and rather joyn unwilling forces with him, then be againſt him. Oppoſite winds.

Yet nevertheleſſe, if they be obliquely contrary, they may blow together: and by how much they are the more oblique, by ſo much they ſtirre up the greater ſtrivings and tempeſtuous blaſts. Oblique winds.

But if the exhalation be little, tenuous or thin, then we have onely a pleaſant whisking wind, ſuch as may be called *aura*, by which the aire is gently moved. Whisking winds.

Alſo know, that it is as poſſible to ſee the wind as the aire, their ſubſtances being too tenuous to be perceived; unleſſe in a ſtorm-wind, whoſe matter is an exhalation ſo thick that it darkens the aire; of which more ſhall be ſpoken afterwards; as alſo of whirlwinds, and the like. The matter of wind not obvious to the ſight.

Laſt of all (as it is obſerved, and found by experience) the

the * generall profit of wind, by the unſpeakable wiſdome of the eternall God, is wonderfull great unto his creatures. For beſides the alteration of the weather and change of ſeaſons, from drineſſe to rain, from rain to drineſſe, from cold to heat, from heat to cold with froſt and ſnow, which all are neceſſarie; there is yet an univerſall commoditie that riſeth by the onely moving of the aire: which were it not continually moved and ſtirred, would ſoon putrifie, and being putrified would be a deadly poiſon and infection to all that breathe upon the earth. Wherefore, although we know not the particular place from whence it is raiſed, or where it is laid down, as * Chriſt meaneth, John the third: yet it teacheth the admired providence of the Almightie; inſomuch that we may worthily crie out with the * Pſalmiſt, and ſay, *Oh Lord how manifold are thy works! in wiſdome thou haſt made them all.*

* Fulk.

* *Ille locus vult, quod ventus ſenſibus deprehendi nequeat, & certus locus, ubi ventus ſurgere incipiat & deſinat, notari non poſſit: vis enim ejus tantùm ſentiatur. Havenrent.*

* Pſal. 104. 24.

Artic. 3.

Of the diviſion of winds, & of their names and number.

THe Ancients (as * *Plinie* witneſſeth) obſerved onely foure winds, Eaſt, Weſt, North, and South: but the following ages added eight; making the whole number to be twvelve: Foure vvhereof vvere principall, and called *Cardinall* vvinds; becauſe they blevv *à quatuor mundi cardinibus*, from the foure quarters of the vvorld: The other eight they called *Laterall*; becauſe they vvere (as it vvere) ſide-companions vvith the former foure.

* *Plin. Lib. 2. cap. 47.*

The Cardinall vvere called by theſe names
1. *Solanus, Subſolanus*, or the Eaſt vvind.
2. *Notus, Auſter*, or the South vvind.
3. *Zephyrus, Favonius*, or the Weſt vvind.
4. *Aquilo, Septentrio*, or the North vvind.

And again, the Laterall vvere called by theſe names that follovv, and thus placed from the Cardinall.

As firſt, the Eaſt hath on the Southern ſide *Eurus*, or *Vulturnus*:

Vulturnus : and on the Northern ſide *Cæcias*, or *Helleſpontus*.

Secondly, the South wind hath on the Eaſt ſide *Phœnix* or *Euronotus* : and on the Weſt ſide *Lybonotus*, or *Auſtro-Africus*; ſo called becauſe it declineth from the South ſomething towards Africa.

Thirdly, the Weſt hath on the South ſide *Lybs*, or *Africus* ; ſo called from Lybia and Africa, the Regions from whence they proceed : and on the North ſide there is *Corus* or *Caurus*, called alſo* *Japix*, and *Olympias*; becauſe it bloweth from the mountain *Olympus*.

* *Origan. de effect. cap. 5.*

Fourthly, the North hath on the Weſt ſide *Cyrcius*, called alſo *Thraſcias*, from θράσσω, *converto*, becauſe it uſeth to overturn many things with it. The Spaniards call it * *Gallicus*, becauſe it is obſerved to blow from the coaſts of new *Gallicia*, a Mexicanian province. And on the Eaſt ſide of the North point there is bluſtering *Boreas*, which is a bellowing wind, blowing with a loud hollow ſound; and is therefore derived by *Aulus Gellius* in his * Attick nights, ἀπὸ τῦ βοᾶν, βρεῖν. This diviſion *Ariſtotle* alſo aſſenteth unto, making three winds in every quarter ; as in the ſecond book of his Meteors, at the ſixth chapter, may be ſeen.

* *ibid.*

* *Lib. 2. cap. 22.*

But the mariners make 20 more beſides theſe : inſomuch that the whole circumference of the Horizon is divided into two and thirtie equall parts, which they call and diſtinguiſh by ſeverall names. And now obſerve in this diviſion, that there be foure Cardinall winds; as before : foure middle winds, which are juſt in the middeſt between each Cardine : eight laterall, already mentioned : and ſixteen collaterall : making, in the whole ſumme, the aforeſaid number of two and thirtie.

The mariners reckon 32 winds.

Know therefore that the Cardinall, and middle winds, are properly the principall : the other being leſſe principall and ſubordinate : divided therefore into

into laterall and collaterall; as hath been mentioned.

And as for thoſe middle ones, they be ſuch as we call South-weſt, South-eaſt, North-weſt, and North-eaſt winds. *Notolybicus* is the South-weſt wind; and *Notapeliotes* the South-eaſt. *Borrholybicus* is the North-weſt wind; and *Borrhapeliotes* the North-eaſt.

The reſt, being ſixteen in number, and collaterall, have their places one between each of the other: and ſo the circumference is divided into 32 parts, as before I ſhewed. Now the names of theſe ſixteen are borrowed from thoſe laterals with whom they have the greateſt neighbourhood, by *adding *Meſo* and *Upo* to them. For *Meſo* comes from μέσος, *medius*; becauſe it is in the middle between a principall and a laterall wind: and *Upo* comes from ὑπὸ, *ſub*; becauſe it is as it were ſubject to that laterall wind next unto which it is placed, and from whence it taketh the name. As for example: *Eurus* is a laterall wind, a little from the Eaſt towards the South: and this hath on each ſide of it one collaterall. That which is between *Notapeliotes*, or the South-eaſt wind and it, is called *Mes'eurus*, being middle between a principall and a laterall. But that which is between the Eaſt and it, is called *Up'eurus*, as being ſubject unto *Eurus*. And by obſerving this order you may give names unto all the reſt: for *Meſo* & *Upo* will compound them.

* *Orig. Ephe. lib. de effect. cap. 6.*

Yet nevertheleſſe ordinarily the mariners name them thus. As *North, North and by Weſt, North North Weſt, North Weſt & by North, North Weſt, North Weſt and by Weſt, Weſt North Weſt, Weſt and by North, Weſt. Weſt and by South, Weſt South Weſt, South Weſt and by Weſt, South Weſt, South Weſt and by South, South South Weſt, South and by Weſt, South. South and by Eaſt, South South Eaſt, South Eaſt and by South, South Eaſt, South. Eaſt & by Eaſt, Eaſt South Eaſt, Eaſt and by South, Eaſt Eaſt and by North, Eaſt North Eaſt, North Eaſt & by Eaſt.*

Eaſt, North Eaſt, North Eaſt and by North, North North Eaſt, North and by Eaſt. And then *North* again, as in the beginning.

Artic. 4.

The nature and qualitie of the winds.

IT may well appear by that which already hath been written concerning the generation of winds, that every wind in it ſelf, or in reſpect of the matter cauſing it, is of an hot and drie qualitie. If therefore, blowing from any quarter, we find it other, it is by accident, and not through any inherent propertie: for winds do evermore participate of the nature of that place by which they paſſe: If by ſnowie mountains, then bring they with them the cold of thoſe mountains; if by marſhes, contagion; if by woods, their blaſt is broken; if by ſandie plains, they are warm; if by moiſt watry places, they are wet.

And therefore for particular winds, the * *Panormi* in *Sicil* are extream hot; for before they pierce thither, they ſcoure through the plains of *Sicil*; and taking heat from the ſands, they carrie it into the citie. The South wind at *Genua* is cold, becauſe it paſſeth the ſea, and taketh coldneſſe thereof without touching the land before it arive. But the North wind which bloweth through *France* (ſaith * one) cometh from the ſea, and taking ſome meaſure of heat by the ſaltneſſe thereof, and finding no mountains covered with ice or ſnow in his paſſage, augmenteth his heat by paſſing over the fields of *Normandie*, *Champaigne*, the iſle of *France*, and other provinces, even to the hills of *Auvergne*: which being moderately heated by the South wind on the one ſide, and the North wind on the other, bringeth forth every where excellent paſtures, and feedings for cattell and

* Winds blowing into the haven and famous citie of *Panormus*, or *Palermo* in *Sicilie*.

* In a book called a generall deſcription of the world.

and ſheep, beſides divers ſorts of medicinable plants and moſt perfect ſimples. Alſo in * ſome places it is found that the Eaſtern wind moiſteneth, and the Weſtern wind bringeth drought: and in other ſome the Weſtern moiſteneth, and the other drieth. So that it is poſſible for one and the ſame wind to have a divers qualitie; although not in it ſelf, yet by accident; as at the firſt was mentioned.

* *Origen. Epham. de effect. cap. 5.*

Their qualities according as they commonly blow.

Yet nevertheleſſe generally, and in moſt places, the North, with his aſſociates, is cold and drie: the South, with his companions, is warm and moiſt: and the Eaſt, with his adherents, is farre more drie then the Weſtern and his near neighbour winds.

Norths qualitie.

The reaſons whereof may be. Firſt, for the North, becauſe it bloweth over many ſnowie mountains, and ariſeth from a climate which hath little neighbourhood with the ſunne, where the vapours be few, and the exhalations many that ariſe out of ſundry iſlands by the way. Unto which alſo adde, becauſe the exhalation paſſeth not farre before it come at us, that therefore it ſeldome bringeth rain: for the exhalation hath not time enough to ſpend the drieſt portion of it, ſo as the South wind doth; who paſſeth both over more waterie places, and alſo cometh further before we feel it.

Souths qualitie.

Secondly, for the South wind, it cometh over the Mediterranean ſea, out of which the ſunne begets abundance of waterie vapours, which mix themſelves vvith the vvinds, cauſing them thereupon to be the blovvers in of rain. And as for their heat, it is becauſe they blovv from the Equator vvhere heat is moſt predominant. Alſo knovv that a long and gentle South vvind may ſometimes cauſe clearneſſe and fair vveather, moſt commonly in the ſummer ſeaſon, becauſe it is by nature hot; and therefore blovving for a certain ſpace, it ſo vvarmeth the aire, that the vapours vvhich othervviſe vvould produce

duce rain, are not ſuffered to be knit, but are attenuated and made ſo thin that they come to nothing; or being any thing, they prove onely barren clouds, affording little rain.

Eaſts qualitie.

Thirdly, the Eaſt wind is found to be the drieſt, becauſe it cometh over a great continent of land lying towards the Eaſt, out of which many drie and earthie exhalations are drawn. In winter theſe winds are very cold and freezing; but in ſummer they are pleaſantly warm, but healthfull: and if at any time they blow up rain (which is not ordinary) they then continue it by the ſpace of a whole day; even as the like alſo ſometimes happeneth from the North. The reaſon of which I take to be, becauſe (perhaps) their lateralls, not being abſolutely of the ſame qualitie, may ariſe together with them, and ſo bring rain; eſpecially, if at the ſame time there be any other working in nature apt to moiſten the skie with vapours. For it is affirmed that *Eurus* on the one ſide, and *Cæcias* on the other ſide, being two laterall winds pertinent to the Eaſt, do naturally raiſe clouds, and often turn them into rain; as do alſo *Vpocæcias*, and *Meſ'urus*, their collateralls. And ſo alſo *Cyrcius* may do, and *Borrholybicus*, being on the Weſt ſide of the North, if either of them happen to ariſe and joyn, although but weakly, with the Northern blaſt. For in their own ſole blowings they beget both ſnow and hail; either of which may fall down in drops of rain, when the mixture of qualities is found to be divers.

Why the Eaſt and North winds ſometimes bring rain for a whole day.

Weſt winds qualitie.

Fourthly, the Weſtern wind is farre more moiſt then the Eaſt, becauſe it paſſeth over the great ocean of the Atlantick ſea, which muſt needs caſt out many waterie and moiſt vapours, and they cannot but beget rain and ſhowers. It is ſaid alſo to be of a cold temper; but ſurely not of an abſolute coldneſſe: for it is found by experience that a direct *Zephyrus* or *Favonius*, with their

collateralls, *Meſocorus*, and *Up'africus*, are warm and pleaſant, bringing ſometimes hot ſhowers, ſometimes warm and clear weather. And therefore it is determined by certain Authours, that this wind may blow from a cold place, and yet bring heat. For although (in regard of the place over which it cometh) it be cold; yet in reſpect of the time when it uſually bloweth, it is hot. Which* *Horace* alſo pointed at, ſaying,

* Lib. 1. ode. ed. 4.

Solvitur acris hyems gratâ vice veris & Favoni.
The winter ſharp is looſed by the kind
Return of Spring, and of the Weſtern wind.

Or will you hear what others ſay? *Lemnius* (as *Origanus* relateth) affirmeth that this Weſtern wind and his collateralls are of a changing temper. For although in the beginning of the Spring they be pleaſing and gentle, and are found to recreate and cheriſh all things, ſeeing they are warmed by the moderate heat of the ſunne, which makes them bring out the beautie of trees, and flowers, to the view of the world; and alſo cauſeth the bloud and good humours to appear, which in winter lay hid, as if they were not; caſting away alſo the clouds of the mind, and begetting jocundneſſe in the heart: yet nevertheleſſe, Autumne ending, and the circuit of the yeare enclining to Winter, the aforeſaid winds do blow unkindly, ſtriking the ſea and land with many a tempeſtuous blaſt, and unwiſhed breathings.

The effects of a long-continuing wind, at certain ſeaſons.

Moreover, this alſo may be obſerved, that the long continuance of the winds in any of theſe quarters, produceth theſe and the like effects.

As firſt, the Eaſt wind breedeth in cholerick bodies ſharp fevers, raging madneſſe, and perilous apoſtumations.

Secondly, the South wind breedeth corrupt humours, and in hot bodies cramps, giddineſſe in the head, or the falling ſickneſſe, peſtilence and cruel fevers, *viz.* when

when they blow long in the winter. This is held to be the moſt unwholeſome wind.

Thirdly, the Weſt wind breedeth phlegme in moiſt bodies; it procureth ſleep, cauſeth apoplexies, and the like; and is never ſo churliſh as when winter begins to approch.

And laſt of all, the North wind is good againſt the peſtilence; and yet in cold bodies it breedeth plurifies, coughs, gouts, and (in ſome) ſquincies and ſore throats: but yet of all winds it is held to be the wholeſomeſt, although it be ſharp in our winter moneths.

And this alſo note, that a continuall ſtill ſummer is a ſigne of plague or earthquake: for a ſtanding aire putrifieth, and an encloſed wind ſhaketh the ground. A ſigne of plague and earthquake.

Artic. 5.

Of whirlwinds ſtorm-winds, and fired whirlwinds.

A Whirlwind, is a vvind breaking out of a cloud, rovvling or vvinding round about: vvhich may be cauſed tvvo manner of vvayes.

Firſt, vvhen tvvo or more contrary vvinds blovving from divers places, meet together.

Secondly, vvhen the matter of vvind, being an hot and drie exhalation, breaketh out of a cloud in divers parts of it, coming through the ſaid holes vvith more then an ordinary violence. Or rather thus; Imagine a vvindie exhalation burſting out of a cloud, to be ſo driven, that by the vvay it happeneth to be pent betvveen tvvo clouds on either ſide of it; againſt vvhich, beating it ſelf, and finding a repercuſſion, it is forced to turn and vvhirl about: even as vve ſee in the ſtreets of cities, vvhen the vvind is beaten from tvvo vvalls, and meeteth in the middeſt of the ſtreet: for then there is made a little vvhirl-puff, vvhich vvhisking round about taketh up the duſt or ſtravvs & blovveth them about, as doth the great

and fearfull vvhirlvvind it ſelf; vvhich hath brought not onely amazement and terrour to mortalls but alſo much harm and miſchief. * *Plinie* is perſvvaded that vineger throvvn into one of theſe blaſts vvill break it, becauſe vineger is of a cold qualitie, and the exhalation hot: and therefore the one is as it vvere quelled and quenched by the other. The Greeks call a vvhirlvvind τύφων; the Latiniſts *turbo* or *vortex*.

* Lib. 2. cap. 28.

Typhon. * Ἀπὸ τοῦ τύφειν, quod eſt verberare.

Alſo a ſudden ſtorm-vvind is called by the Greeks, ἐυπρεπία; and by the Latines, *Procella*: and this happeneth, either vvhen a windie exhalation is throvvn dovvn, and encompaſſed in a thin courſe of clouds nevvly overcaſt, or elſe vvhen a windie exhalation is come to an extraordinary thickneſſe, and violently moved out of a cloud, to the darkening of the aire, vvithout inflamation or burning: for vvhen it burneth they call it πρήσειν ἀ πίμπρημι *incendo*, to burn, or ſet on fire. And this laſt is that vvhich we call a fired whirlvvind, being an exhaled blaſt ſet on fire either by an *Antiperiſtaſis*, by repercuſſion, or violent detruſion from the cloud vvherein it vvas enclоſed; for it is made apt to be fired in regard that it conſiſteth of an exhalation which hath more fattie ſubſtance in it then other vvinds which burn not: And knovv that it differeth from lightning chiefly in theſe reſpects: firſt, becauſe lightning conſiſteth of a more ſubtil and thinne matter: for although a fired vvhirlvvind have a more thin ſpirit or blaſt then a whirlvvind, or a ſtormie vvind; yet it is not ſo tenuous as the ſpirit of *fulmen*, or lightning. Secondly, becauſe lightning is more flamie and leſſe breathie; the one having more vvindie ſpirits in it then the other.

Euraphias.

Preſter.

The concluſion of this dayes work.

A conclusion repeating the ſum of this dayes work.

AND thus at the laſt I have let you take a vievv vvith me of vvhat is pertinent to this dayes vvork. We have

have ſeen (good Reader) the framing of the out-ſpread Firmament, with the lifting up of the waters over it: we have examined the nature of the heavens, and ſcarce found them of a quint-eſſence: we have ſearched what heavens they were which Moſes meant, when he ſaid, *God called the firmament Heavens.* From thence we proceeded to the ſeverall regions of the aire examining their temperatures and qualities; and thereupon we fell into an ample conſideration of ſuch appearances as are uſually ſeen in any of thoſe Regions; diſcourſing at large both of fierie, waterie, and aierie Meteors.

And this being all which this day affordeth, I may here make an end, and ſay

That eve and morn conclude the ſecond day,
And in his work God findeth no decay.

CHAP. VI.

Wherein is contained a ſurvey of the third dayes work; together with ſuch things as are pertinent to it.

Sect. 1.

Shewing into how many main parts the buſineſſe of this day may be diſtinguiſhed.

* Æneid. lib. 1.

BEing come from the ſecond to the third dayes work, I cannot ſay with * *Virgil* now, *Ille ego qui quondã gracili modulatus avena*: But rather on the contrary, *Ille ego qui ſuperis volitabam nuper in oris,*

Nunc humilis ſequor arva ſoli, nunc tennia preſſo
Ore loquor ——

Becauſe in the former day, the work belonging to it, compelled my winged pen to ſoar aloft, not ſuffering her to come unto the ground till now. For ſhe was to walk above the Firmament, and view the out-ſpread buildings laid in the flowing waters: then through the Regions of the liquid aire ſhe was to trace a path; which finiſhed, ſhe muſt be content to frame her ſelf unto a lower pitch, before any leave be granted to aſcend again. And indeed I think it is what both ſhe and I deſired; for we were long detained there.

And now, having both of us obtained our wiſhes, we find that Gods inſpired pen-man, holy Moſes, ſo ſetteth down the admired work of his Almighty maker, done

done on this third day of the world, that into three main parts it may be ſevered: for by viewing the words which he hath written of it, the ſame will be apparent. *And God* (ſaith he) *ſaid, Let the waters under the heaven be gathered together unto one place, and let the drie-land appear: and it was ſo.*

And God called the drie-land Earth, & the gathering together of the waters called he Seas: and God ſaw that it was good.

And God ſaid, Let the earth bring forth graſſe, the herb yielding ſeed, and the fruit-tree yielding fruit after his kind, whoſe ſeed is in it ſelf, upon the earth: and it was ſo.

And the earth brought forth graſſe, and herb yielding ſeed after his kind: and the tree yielding fruit, whoſe ſeed was in it ſelf, after his kind: and God ſaw that it was good.

And the evening and the morning were the third day.

This is the ſumme of all; which (as before was ſaid) conſiſteth of three ſeverall parts.

The firſt whereof concerneth the *gathering together of the waters* in theſe words. *And God ſaid, Let the waters under heaven be gathered together unto one place.*

The ſecond concerneth the *drying of the ground*, in theſe words, *And let the drie-land appear.*

The third is pertinent to the *ſprouting and ſpringing of the earth*, in theſe words, *And God ſaid, Let the earth bring forth graſſe, the herb yielding ſeed, and the fruit-tree yielding fruit after his kind, &c.*

All which in their orders are ſeverally to be diſcuſſed, together with ſuch other things as are pertinent to the ſaid diviſion.

And concerning the two firſt, obſerve that God beſtowes as it were ſirnames on them; calling the gathering together of the waters, Seas: and the drie-land he calleth Earth.

Sect. 2.

Of the gathering together of the waters, which God called Seas.

WAter and earth are the two loweſt elements; and this vvas that day which brought them to perfection: for untill now they were confuſed; becauſe their matter, although not quite void of form, received at this time a better form of due diſtinction and more comely ornament. The informitie was expreſſed before, when Moſes ſaid that the earth was void and inviſible, becauſe covered vvith waters: but the formitie is then expected and declared when the waters are gathered, and the drie-land made apparent.

It is a wonder (ſure) to think what a confuſed tyrannie the waters made by their effuſion; for they did rather tyrannize then orderly ſubdue or govern this inferiour mirie maſſe: wherefore it ſeemed good to the Almightie maker, firſt to divorce one from the other, before he gave them leave ſo to be joyned each to other, that both together might make one globie bodie; which (according to the beſt approved Writers) is one and twentie thouſand and ſix hundred miles in compaſſe.

But concerning this gathering together of the waters, there ariſe certain queſtions, which may not altogether be forgotten.

Queſtions concerning the waters which are ſaid to be gathered together.

As firſt, it is enquired, How the waters were gathered together.

Secondly, How it can be ſaid that they were gathered to one place; ſeeing there be many ſeas, lakes, rivers, and fountains that are farre aſunder.

Thirdly, Whether they be higher then the earth.

Fourthly, Whether there be more water then earth.

Fifthly, Whether the earth be founded upon the waters.

Sixthly,

Sixthly, Why the ſeas be ſalt, and rivers freſh.

Seventhly and laſtly, What cauſeth an ebbing and flowing in the ſea, rather then in rivers.

Queſt. 1. Which ſheweth how the waters were gathered together.

Concerning the firſt of theſe queſtions, thoſe who think that there be no *Antipodes*, ſuppoſed that the waters did runne together and cover the other part of the earth which is oppoſite to this where we dwell. But the experience of skilfull navigatours and famous travellers, yea and reaſon it ſelf, doth crie againſt it.

Others imagine that it was ſome mighty wind which dried them up; or that the fervent heat of the ſunne effected it. But both think amiſſe: becauſe the drie-land (ſaith one) appearing all at once, was ſo prepared by a greater power then either of the wind or ſunne, which could not work it at once, nor ſcarcely in a long continuance of time: neither was the ſunne made untill the next day after. *Dixit igitur & factum eſt*; he ſpake the word onely, and by the power of that word it was done. For the efficient cauſe of the ſea was the onely word of God; the materiall was the waters; the formall was their gathering together; and the finall partly was, that the drie-land might appear. *Ezekiels* * wheels were one within the compaſſe of another: and ſo was the earth, water, and aire, before the powerfull word of God commanded this their gathering: the earth within the water; the vvater vvithin the aire; and the aire vvithin the concave of the Firmament. Which if they had all for ever ſo remained, and man made as he is, the vvorld had been no houſe for him to dvvell in, neither had it been a vvork ſo full of never ended admiration as novv it is.

* Ezek. 1. 16.

Perhaps the pores and holes of the ground vvere full before this gathering; yet nevertheleſſe their bodies muſt be vvilling to be made the beds for more. That they vvere full, it proceedeth from the nature of the vvater, falling

falling downwards and filling them. That being full, they are yet made capable of more, might proceed both from a more close compoſure of the not hollow parts of the earth, and alſo by making theſe waters thicker then they were before. For whileſt the not hollow parts were made more ſolid, the hollow could not chooſe but be * enlarged: and whileſt the thin and vapourie waters were better thickened and condenſed, the outface of the ground could not be obſcured, but ſhew it ſelf as one releaſed from out a waterie priſon. Some adde unto this their heaping together in the high and wide ſeas, whereby it cometh to paſſe that they flow to and fro at flouds and ebbes, and do often force out water-ſprings from out the higheſt mountains: which laſt, whether it be ſo or no, ſhall be examined afterwards.

* Job 38. 10.

Queſt. 2. Shewing how they were gathered to one place.

The next queſtion was, how it can be ſaid that they were gathered to one place; ſeeing there be many ſeas, lakes, rivers and fountains that are farre aſunder.

It was a ſtrange conceit of him who thought that this one place unto which the waters were gathered, was ſeparate ſo from the earth, that the waters by themſelves ſhould make a globe, and have their proper centre; for leaving to deſcend towards the centre of the earth, they were gathered to a centre of their own, and ſo the drie-land appeared.

But this opinion is very falſe, and worthy to be reckoned amongſt abſurdities: for (as the * Prophet Eſay writeth) the Lord is ſaid to *ſit upon the circle of the earth.* Now experience ſheweth that it is not the earth alone, but the earth and ſea together that make one globe or circle.

* Eſay 40. 22.

This one place then whither the waters were gathered, was not a place ſeparated from the earth, being in the aire or elſewhere, but was in the very body of the earth it ſelf. Neither was it one place ſtrictly taken, as if it meant

meant one point or angle of the earth: or, as if there were no *Antipodes*, half the earth under us was to be covered with water.

But rather it is called one place, becauſe in the whole globe of the earth, every place is either water or land: or (if not ſo) becauſe there is but one body of all the waters that are: for every part of the water is joyned unto the whole as it were with arms, and legs, and veins diverſly dilated and ſtretched out. So that either under the earth, or above the earth, all the waters are joyned together: which alſo the wiſe man witneſſeth, Eccleſ. 1. 7.

But haply ſome may think, becauſe this gathering together of the waters is called Seas, that therefore the one place, unto which they were gathered, is not to be underſtood of every collection or gathering of water, but onely of the ſea.

Well, be it ſo. And if this rather then the other be the meaning of Moſes his words, it may be anſwered, that although the ſea be divers in name, yet all ſeas are ſo continued together, that one ſea is perpetually joyned with another: and thereupon the name given, is not *Sea*, but *Seas*; as in the text is manifeſt.

Yea and hereupon it alſo is, that Geographers make theſe waters come under a foureſold diviſion. For they either call this gathered water, *Oceanus*, *Mare*, *Fretum*, or *Sinus*.

1. *Oceanus*, the ocean, is that generall collection of all waters, which environeth the world on every ſide.

2. *Mare*, the ſea, is a part of the ocean, to which we cannot come but through ſome ſtrait.

3. *Fretum*, a ſtrait, is a part of the ocean reſtrained within narrow bounds, and opening a way to the ſea.

4. *Sinus*, a creek, or bay, is a ſea contained within a crooked ſhore, thruſting out (as it were) two arms to embrace the lovely preſence of it.

Object.

Object. But perhaps you will ſay that the Caſpian ſea is a ſea by it ſelf, and therefore all ſeas joyn not the one unto the other.

Anſw. To which it is anſwered, that this ſea is either as a * lake in reſpect of the contiguous or joyning ſeas; or elſe it was no ſea in the beginning of the world, but began onely at the ceaſing of the Floud & was cauſed by the waters coming down from the Caſpian hills, ſettling themſelves in thoſe declive and bottomie places where the ſaid ſea is. *Plinie* and *Solinus* are perſwaded that it joyneth it ſelf unto other ſeas by running into the Scythian or Northern ocean through ſome occult paſſages under ground; which is not improbable. But howſoever, this we are ſure of, that the river *Volga* is joyned to it, being as another ſea, and having no leſſe then ſeventie mouthes to emptie it ſelf: which river is alſo joyned to the river *Don*, and that hath great acquaintance with the Euxine ſea. Beſides, *Volga* is not a ſtranger to * other waters which fall either into the Scythian or Baltick ocean: inſomuch that it may be ſaid, this Caſpian ſea is tied (as it were) with certain ſtrings to * three other ſeas: and ſo, not onely all waters are made one bodie, like as before I ſhewed, but (if this gathering muſt needs be referred to the ſeas) even all ſeas alſo ſhake hands, and by one means or other mutually embrace one the other.

*Dr Fulk in his Met. lib. 4. ſaith that ſome lakes are ſo great that they bear the names of ſeas: among which he reckoneth this Caſpian ſea.

*As *Duina major* and *Duina minor* called alſo *Onega*. Look into the maps of Ruſſia or Muſcovia.

* *Viz.* the Euxine, Baltick, and Scythian or Northern ſeas.

Queſt. 3. Shewing whether the waters be higher then the earth.

A third queſtion is, Whether the waters be higher then the earth. Concerning vvhich there be Authours on both ſides; ſome affirming, ſome denying.

That they be higher then the earth, it is thus affirmed.

Firſt, becauſe vvater is a bodie not ſo heavie as earth.

Secondly, it is obſerved by ſailers, that their ſhips flie faſter to the ſhore then from it; vvhereof no reaſon can be given, but the height of the vvater above the land.

Thirdly, to ſuch as ſtand on the ſhore, the ſea ſeemeth to

to ſwell into the form of an hill, till it put a bound to their ſight.

Fourthly, it is * written of *Seſoſtris* King of Egypt, and after him of *Darius* King of Perſia, that they would have cut the earth and joyned *Nilus* and the Red ſea together; but finding the Red ſea higher then the land of Egypt, they gave over their enterpriſe, leſt the whole countrey ſhould be drowned.

* *Herodot. in Euterpe & in lib. ſequent. Plin. lib. 6. cap. 29.*

Fifthly, the ariſing of ſprings out of the higheſt mountains doth declare it, becauſe the water cannot be forced higher then the head of the fountain oppoſite to it. As for example. Like as we ſee a ſpring that riſeth in an hill, conveyed in lead unto a lower ground, will force his waters to aſcend unto the height it beareth at the fountain: even ſo the waters which ſtand above the mountains, do force out ſprings of water, by neceſſary and naturall cauſe, out of the higheſt mountains.

Sixthly, the * Pſalmiſt doth witneſſe the ſame, affirming moreover that God Almighty *hath made the waters to ſtand on an heap, and hath ſet them a bound which they ſhall not paſſe, nor turn again to cover the earth.* And Jer. 5. 22. *Fear ye not me, ſaith the Lord? will ye not tremble at my preſence, which have placed the ſand for the bound of the ſea, by a perpetuall decree that it cannot paſſe it; and though the waves thereof rage, yet can they not prevail?* Thus on the one ſide.

Pſal. 104.

But notwithſtanding all this, methinks the other part (yet chooſe which you will) is moſt probable.

For firſt the water indeed is a bodie not ſo heavie as earth, yet heavie enough to deſcend, not being of an aſpiring nature, but preſſeth eagerly towards the ſame centre that a ſtone or any part of the earth coveteth: It cannot therefore poſſibly be above the earth, although not ſo heavie as earth, unleſſe there were no hollow places in the ground to receive it. But God Almighty, in gathering

gathering them, provided lodgings for them, leſt they ſhould turn again and cover the earth: which alſo is inſinuated by the Hebrew word *Kava* ſignifying to congregate or gather together; from whence the Latine word *Cavus*, hollow, may ſeem to be derived. Beſides, ſhould it be alledged that the hollow places could not be deep enough to receive them, what were this but to curtail the earths Diameter or thickneſſe? for ſuppoſe the waters ſtood above the hills before they were gathered to one place; yet know that even the Semidiameter of the earth is deeper by no few miles then the higheſt hill. Suppoſe you could imagine an hill to be above a thouſand miles high (which is impoſſible) yet the earths Semidiameter would be two thouſand, foure hundred, and above 36 miles deeper then that height. As for example; if the earth be 21600 miles in compaſſe, then the Diameter will be $6872\frac{8}{11}$ miles; and if the Diameter be $6872\frac{8}{11}$ miles, then the Semidiameter muſt be half ſo much, viz. $3436\frac{4}{11}$ miles.

Secondly, ſuppoſe it be obſerved by ſailers that their ſhips fly faſter to the ſhore then from it: this proveth not the ſea higher then the land. For know that it is no wonder to ſee a ſhip ſail more ſpeedily homewards then outwards; becauſe, when it approcheth to the ſhore, it cometh with a continued motion which makes it the ſwifter: but when it goeth from the ſhore, it doth but begin its motion, and is therefore ſlower then before. This (if need were) might be proved by many plain and familiar examples.

Thirdly, ſuppoſe that the ſea ſeemeth, to ſuch as ſtand on the ſhore, to ſwell higher and higher, till it put a bound to the ſight; this rather proveth the ſphericall roundneſſe of the earth and ſea, then any thing elſe; ſhewing that both together make one globie bodie. Which, why it is perceived rather in the water then the land,

land, this may be a reaſon; namely becauſe the ſea, being a plain and liquid element, and ſpacious enough, doth better ſhew it then the earth, which hindereth our full view by reaſon of many woods, trees, and other fixed obſtacles, which the ſight meeteth and encountreth by the way.

Fourthly, although *Seſoſtris* K. of Egypt, and after him *Darius* K. of Perſia, dared not to make a cut out of the Red ſea into *Nilus*, for fear of drowning the countrey, becauſe they ſuppoſed that the ſea lay three cubits higher then the land of Egypt: yet (as ſome report; how truly, I cannot tell) the *Ptolomies*, kings of Egypt, effected the work without any danger of inundation. But ſuppoſe they had not done it, or ſuppoſe it were granted that the Red ſea were higher then the plains of Egypt; yet it followeth not (unleſſe one ſwallow can make a ſummer) that the ſea in generall is every where higher then the earth. As for the height of the Red ſea above the land near adjoyning to it, * *Ariſtotle* ſeemeth to give a reaſon, perſwading himſelf that there is ſuch a change in the univerſe, as that that which hath been ſea is ſometimes land, and that which hath been land is ſometimes ſea: and ſo he thinketh of thoſe low grounds near the Red ſea, that they have been gained from the ſea. The like we may alſo think of many places in the Netherlands, and of that ſmall part of ſea which is between *Dover* and *Callis*; as *Verſtegan* proveth in his reſtitution of decayed antiquities, cap. 4. pag. 97.

* *Met. lib. 1. cap. 14.*

Fifthly, ſuppoſe that certain ſprings ariſe out of the higheſt mountains, muſt the ſea therefore needs be higher then thoſe mountains? ſurely I think not. For albeit I be not of *Ariſtotles* mind, nor of their opinions who do not derive the rivers from the ſeas, nor make ſubſcription unto them who give a ſucking and an attractive power to the veins of the earth; yet I find it as a thing poſſible,

poſſible, although that part of the ſea which lieth oppoſite to the head of the fountain, or to the place where the water firſt breaketh out, be lower then the ground, that the ſaid water may nevertheleſſe eaſily aſcend, and not break forth untill it find a place convenient. Now this aſcent is cauſed by the ſea, which, ſeeing it is a vaſt bodie, is very ponderous and heavie and cannot be thruſt back by the water at the head of the fountain oppoſite to it, but rather it doth potently and ſtrenuouſly croud on the ſaid water through the hollow ports and paſſages of the earth, untill at the laſt it ſpringeth forth.

Were it ſo indeed that there were an equall weight of both waters, (I mean of the ſea-water driving, and of the ſpring-water ariſing) then the aſcent of the one could not be higher then the *ſuperficies* of the other: but ſeeing the weights are unequall (which * *Cardan* did not well conſider) the ſtronger and heavier muſt needs drive on the weaker and lighter, cauſing it ſometimes to aſcend even above it ſelf.

* *De ſubtil. lib. 3. pag. 123.*

Sixthly and laſtly, that which the Pſalmiſt witneſſeth concerning the ſtanding of the waters on an heap, I take to be nothing elſe but the gathering of them to one place, ſo and in ſuch a manner, that their coming together may be called Seas, and their forſaking the land be called Earth: for if one place of Scripture be expounded by another, it will appear to be even ſo. Firſt, becauſe it is ſaid, Eccleſiaſtes 1.7. *All the rivers go into the ſea:* but the water hath his naturall courſe downwards, and cannot be forced up, but by the heavier weight; as hath been ſhewed. Secondly, becauſe it is ſaid Pſal. 107. 23. *They go down to the ſea in ſhips: down*, as to the lower place; and not *up*, as to the higher. And for that alledged out of Jeremy, *viz. Fear ye not me &c.* The Prophet ſpeaks there of no miraculous work againſt nature, but of the ordinary providence of God by naturall means,

means, keeping back and bounding the ſea; as at the 24. verſe is manifeſt. For there he gives the like inſtance of the rain; which we know is not wrought by miracle, and yet it ſheweth the watchfull providence of God, preſerving the world by the naturall courſe of the creatures.

Judge then if they be not miſtaken, who would have the ſea higher then the earth.

Queſt. 4. Shewing whether there be more water then earth.

The fourth queſtion is, Whether there be more water then earth.

Now here I am perſwaded that the anſwer may be either double or doubtfull. For if we have reſpect to the known parts of the world, then I think there may be more ſea then land. But if we have reſpect to all, both known and unknown, then perhaps there may be as much land as ſea: For we ſee that in the maps of the world, the Southern parts are not known, and therefore they write *Terra Auſtralis nondum cognita*: which whether it be ſea or land, is uncertain. *Pareus*, upon Geneſis, is perſwaded that the land is more then the ſea, alledging a proof out of * Eſdras, where it is ſaid that when God commanded the waters to be gathered, he gathered them into the ſeventh part of the earth, and dried up the ſix other parts: which although it be Apocryphall in reſpect of the authoritie of the book, yet (ſaith he) it ſerves to ſhew that the waters are not more then the earth.

* 2. Eſdr. 6. 42.

Queſt. 5. Shewing upon what the earth is founded.

The next queſtion is, Whether the earth be founded upon the waters.

The Pſalmiſt ſeemeth to affirm it, Pſal. 24. verſe 2. For (according to the common reading) it is, *He hath founded it upon the ſeas, and prepared it upon the flouds.*

To which it is anſwered, that if the earth (as it is) be the receptacle for the waters, or holdeth the waters in the concavities of it, how can it be that the waters

are inſtead of a foundation? Job ſaith, *He hangeth the earth upon nothing*, chap. 26. 7. If upon nothing, then not upon the waters, for they are ſomething. And again, even the Pſalmiſt alſo ſaith, *The foundation of the earth cannot be moved*, Pſal. 104. 5. If not moved, then not founded upon the waters, for they are moveable; flitting to and fro, ſometimes this way ſometimes that way, and never ſtanding ſtill.

Wherefore when the Pſalmiſt ſaith, *The earth is founded upon the ſeas*, he meaneth that it is ſo placed above them, as that it is made fit to be a place for habitation: And ſo Expoſitours underſtand the Hebrew word *Gnal*; *viz.* in ſuch a ſenſe that it doth ſignifie *above*, and not *upon*: In which ſenſe, the waters that it ſuſtaineth do not hold it, but are holden by it: for they are in it *tanquam in utre*, as in a certain veſſel; and do alwayes ſtrive to come as near the centre as is poſſible.

For concluſion then of this queſtion, thus much muſt be known; namely, that when God made the world, he made * all things in number, weight, and meaſure: inſomuch that the earth (although it be hanged upon * nothing) is ſo equally poyſed on every ſide, that it cannot but be firmly upheld; and no more fall then the ſun out of the firmament, or the ſtarres out of heaven. For hath not man ſometimes ſhewed an admired portion of skill in this or that rare work which he hath wrought, and effected by nothing elſe but onely the deep and profound rules of art? yes ſurely hath he. And if man be ſo potent as to make his skill admired, yea and by thoſe who are men as well as he; what may we think of the Maker of men, but that his art is much more then commendable and his wiſdome much more then matchleſſe; ſo that the world, and all the parts thereof, afford nothing but matter of wonder? It is therefore an acclamation which deſerves impreſſion in the hearts of us mortall

* Wiſd. 11. 20.
* Job 26. 7.

tall men; *Oh God how manifold are thy works! in wiſdome thou haſt made them all:* And being made, his providence doth ſuſtain them.

The ſixth queſtion is concerning the ſaltneſſe of the ſea, and freſhneſſe of rivers. *Queſt. 6.* Shewing why the ſea is ſalt, and rivers freſh.

Ariſtotle, in his ſecond book of Meteors, at the 3. chapter, ſetteth down (beſides his own) three opinions concerning this ſaltneſſe. One whereof is, that the waters overflowing the earth in the beginning of the world, were ſo dried up by the heat of the ſunne, that not onely the drie-land appeared, but all thoſe waters which remained (being the ſea) were ſo ſucked and robbed of their ſweet ſavour, that they could not but be ſalt.

Another opinion agreeing to that of *Plato*, who generating the ſea *ex tartaro*, or from great and deep gulfs in the earth, or (with others) drawing it through the bowels of the earth, gave occaſion to think that the water in it ſelf was ſweet, and yet became ſalt by reaſon of the divers ſavours that it met withall in the ground or veins of the earth. Which cauſe, by the *interpreters of *Ariſtotle*, is alſo attributed to *Anaxagoras* & *Metrodorus*, as being pleaſing to them. For as water ſtrained through aſhes is endued with a certain tart and ſalt kind of acrimonie; ſo the ſea is made ſalt by ſome ſuch kind of earth through which it paſſeth: which is as others have alſo thought, who ſuppoſe that the ſaltneſſe of Mineralls doth much conduce to this purpoſe.

*Havem. in Ariſt. de Met. lib. 2. cap. 1.

A third was the opinion of *Empedocles*, who affirmed that the ſea was but the ſweat of the earth, being (as it were) roſted by the heat of the ſunne; and was therefore ſalt, becauſe all ſweat is of ſuch a ſavour.

Now theſe three opinions *Ariſtotle* endeavoured to confute by ſeverall reaſons, ſhewing other cauſes of the ſeas ſaltneſſe. And indeed had it been ſo with him that

he could have repaired unto Moſes, then had the firſt opinion been ſtruck dead more eaſily then it was; becauſe Moſes would have told him that the drying of the earth, and gathering of the waters, were one day elder then either ſunne or ſtarres.

And for the ſecond, if it be taken in a qualified ſenſe, it is not much amiſſe: for although *Ariſtotle* ſaith that if it be a true opinion, then rivers would be ſalt as well as ſeas, becauſe they runne in the veins of the earth; yet know that all and every vein is not of one and the ſame temper; as is apparent by the differing qualitie of ſpringing waters.

As for the third, it ſeemeth rather a ridiculous then philoſophicall opinion: for ſweat is but a ſmall part of that humour contained in any bodie that yieldeth ſweat; but the ſea is not the ſmalleſt part of humour in the bodie of the earth: therefore it neither cauſeth the ſea, nor ſaltneſſe of it.

But beſide all theſe, there are other opinions alſo. Wherefore ſome again have attributed the cauſe to aduſt vapours, partly let fall on the ſea, and partly raiſed from it to the brinks and face thereof; Others to the motion of the ſea; Some to under-earth, or rather* under-ſea fires, of a bituminous nature, cauſing both the motion and ſaltnes alſo; Others to an hot and drie aſpiration exhaled out of the * earth, and mixed with the water of the ſea.

* Lyd. de orig. font. cap. 8, 9.

* Viz. under the water.

But that which followeth ſeemeth abſolutely the beſt, namely that it is effected by the working of the ſunne, which draweth out the purer and finer parts, leaving the groſſer and more baſe behind; even as in this little world of our bodies, the pureſt part of our nouriſhment being employed in and on the bodie, the urine and other excrements remaining do retain a perfect ſaltneſſe. Unto which opinion they alſo aſſent, who affirm that the ſaltneſſe is radically or originally in

in the matter of the water; vvhich muſt be ſo underſtood as the vvater hath in it an earthy kind of ſubſtance of a drying nature: which (as I ſuppoſe) vvas not firſt in the matter of the vvaters before they vvere gathered unto this one place where novv they are; becauſe, as is reported and vvritten, there be ſalt mines in ſundry places, as in a certain hill in *Barbary*, out of vvhich perfect ſalt is digged, and uſed for ſalt after it is made clean and beaten ſmall. All vvhich doth greatly commend the providence and vviſdome of God: For it is not unlike but that the ſea vvas by his vviſdome and providence gathered into ſuch ſalt valleys of the earth, as vvere othervviſe barren and unfruitfull: vvith vvhich ſubſtance, the gathered water being mixed, muſt needs partake both of an earthy matter, and alſo of a ſalt ſavour; yet ſo, as this ſalt ſavour canot be dravvn out, and ſenſibly perceived in the mixture of many ſvveet humours joyned vvith it, vvithout a ſeparation firſt made by the heat of the ſunne, of the thinner parts from the thicker: And ſo the ſunne is a diſponent, though not a productive cauſe of this ſaltneſſe,

The ſea made ſalt by the ſubſtance of the ground: that is my opinion.

Novv this opinion may be ſtrengthened by many reaſons.

Firſt, becauſe ſea-vvater, vvhen it is boyled, doth evaporate a devvie or vvaterie humour, which being collected and kept together, hath a ſvveet taſt or ſavour.

Secondly, becauſe vapours dravvn from the ſea and turned into rain, are void of ſaltneſſe.

Thirdly, becauſe the ſea in ſummer, and tovvards the South (as *Ariſtotle* affirmeth) is more ſalt then elſevvhere; vvhich cometh to paſſe in that the ſunne, at that time and place, dravveth avvay more of the ſvveet humours then at other times.

Fourthly, becauſe the ſea is freſher tovvards the bottome, then at the top; as ſome have found by uſing practiſes to experience it.

Fifthly, becauſe (as *Ariſtotle* again teſtifyeth) if an emptie veſſel ſealed up vvith vvax, be by ſome means or other cauſed to ſink into the ſea, and there let lie for a certain ſpace, it will at the laſt be filled with very freſh and ſvveet vvater, iſſuing in through the inſenſible ſmall pores of the vvax: for by this manner of paſſing into the veſſel, the thin is ſtrained from the thick: yea by this means, the earthy and aduſt part, vvhich carrieth the ſaltneſſe in it, is excluded, vvhileſt the other is admitted. For in every ſalt ſavour, tvvo things are required; *viz.* an aduſtion, and an earthie kind of ſubſtance of a drying nature: both vvhich are found in the ſea. For (according to the teſtimonie of Phyſicians) ſea-water doth heat and drie more then other vvaters, and is alſo more ponderous or heavie; yea and it doth more eaſily ſuſtain a heavy burthen, giving it leſſe leave to ſink then the freſh ſilver-ſeeming ſtreams.

And thus vve ſee hovv the ſea comes to be ſalt. It followeth to ſhew vvhy rivers be not ſalt, as vvell as ſeas.

Of rivers; and from whence they proceed.

Novv for the better explaining of this, the firſt thing conſiderable vvill be concerning the originall of fountains and rivers.

Ariſt. de Met. lib. 1. cap 13.

Ariſtotle handled them amongſt Meteors of a vvatry kind, becauſe he ſuppoſed that there vvas the ſame originall of rivers within the earth, vvhich vvas of watry Meteors in the aire above the earth. For if this aire (ſaith he) coming near to the nature of a vapour, is by cold turned into vvater; then the aire which is in the caverns of the earth, may be, by the ſame cauſe, condenſed into vvater alſo. According to vvhich grounds, vve cannot but make this the originall of fountains and rivers; namely, that they are ingendred in the hollow concavities of the earth, and derive both their birth and continuall ſuſtenance from the aire; vvhich piercing the open chinks or *chaſma's* of the earth, and congealed by the

the cold of thoſe places, diſſolveth into water (as we ſee the aire in winter nights to be melted into a pearlie dew, ſticking on our glaſſe windows) and being grown to ſome quantitie, it will either find a way, or make a way, to vent its ſuperfluitie. All which agreeth very well to the nature of the aire, which ſeeing it is hot and moiſt, the heat being gone it is thickened, and ſo eaſily turned into water.

And as for a continuall running of rivers cauſed by this water, it is (ſaith *Ariſtotle*) by a perpetuall ſucceſſion of new aire.

But to this opinion we may not abſolutely make ſubſcription; for although aire may be thus converted into water, yet the ſole matter of rivers cannot come from hence: it may haply be an helping cauſe, but not a prime, or principall cauſe. For firſt, ſith the aire is a thin ſubtil bodie, there is neceſſarily required an abundance of aire to make but a little quantitie of water; inſomuch that it is not doubted by ſome without cauſe, whether the dennes and hollow places of the earth be vaſt enough to receive ſo much aire as can make water enough to runne along, untill it break out into a river or ſpring. Secondly, there be many fountains which have (as it were) a kind of ebbing and flowing at certain direct and ſet times, which they keep as conſtantly as the very ſea it ſelf. As for example, among other ſtrange rivers, * *Plinie* makes mention of *Dodon* Jupiters fountain, which evermore decreaſeth from midnight untill noon; thence it increaſeth untill midnight again. And in the iſland *Delus*, the fountain of *Inopus* (as he alſo affirmeth) keeps his courſe with *Nilus*. Alſo he makes mention of a little iſland in the ſea over againſt the river *Timavus* or *Brenta* in Italie, having certain fountains in it which increaſe and decreaſe, according to the ebbing and flowing of the vaſt bodie of *Amphitrite* or the ſea.

* *Lib. 2. cap. 103.*

Wherefore the wiſe man *Siracides* thought more truly (Ecclus. 40.11.)concerning theſe things ; affirming that *all things which are of the earth ſhall turn to the earth again: and that which is of the waters doth turn again into the ſea.* Which ſaying of his I do not ſay is much ſtrengthened,but abſolutely confirmed by one more authentick then it ſelf ; namely by that of Solomon, Eccleſ. 1. 7. where it is witneſſed that *all rivers run into the ſea,yet the ſea is not full:unto the place from whence the rivers come, thither they return again.* Which teſtimonie makes it plain that the ſea is the principall cauſe of all rivers: and if therefore *Ariſtotles** aeriall vapours have any thing to do in this generation, it is as much as nothing : yet that which they are able to do, I imagine they perform, joyning themſelves with the currents which come from the ſea ; and ſo they runne together in the veins of the earth , either untill free leave be given them to come abroad, or that (like *Hannibal* in the Alps) they work themſelves a way.

*Aeriall vapours are partly a cauſe of ſprings.

Now in this there is little or no difference between *Solomon* and *Plato*, together with the ancient Philoſophers before him,although *Ariſtotle* diſſenteth. For that which *Solomon* calleth the ſea, * *Plato* calleth the great * gulf of the earth;ſaying, Εἰς τοῦτο τὸ χάσμα συρρέυσί τε πάντες οἱ ποταμοὶ, κ᾽ ἐκ τέτου πάλιν πάντες ἐκρέυσιν. *id eſt, Ad illum hiatum & omnes fluvii confluunt, & ex hoc viciſſim omnes effluunt :* that is, *Into this gulf all rivers do both flow or aſſemble themſelves,& alſo by their courſes come or flow out again.*

*Gaelen. Diſput. Phyſ. cap. 39. ex Plat. in Phad.

* Plato did but expreſſe Moſes meaning, Gen. 7. 11. in other words.

How ſprings come to be freſh, ſeeing the ſea is ſalt.

But what need more words ? It is without controverſie that rivers have their firſt originall from the ſea: that is the fountain-head from whence all fountains have their heads. Neither can the ſaltneſſe of the ſea, and freſhneſſe of rivers, ſtop this current.

For concerning ſprings, it is true indeed that they are freſh;

fresh; and this freshnesse, notwithstanding their salt originall, may be ascribed to percolation and straining through the narrow spungie passages of the earth, which makes them leave behind (as an exacted toll) the colour, thicknesse, and saltnesse. So that you see, sea-water (though in it self of a salt and brackish savour) by passing through divers windings and turnings of the earth, is deprived of all unpleasantnesse: and by how much the spring-heads of rivers are * remote from the sea, by so much are their waters affected with a delightfull relish: yea and why they ascend up to the highest mountains, already hath been declared. Unto which may be added, that they come not with a direct course from the sea unto those hills; neither do they ascend directly upwards on the sudden, but by degrees: and so, winding themselves through many crooked passages and turnings, they do (as it were) scrue themselves up to the convenientest place of breaking out; and cannot go back, because the sea is a farre heavier bodie then the vein that cometh from it; even as the bloud in our veins is nothing in proportion to the liver, from whence each vein of bloud hath its first beginning.

* *Putei prope mare salsi, longius, minus, procul, nihil. Scal. exercitat. 50.*

But I draw towards a conclusion, adding in the last place, that of waters (be they seas or rivers) we have a threefold use and benefit.

The benefit and use of waters.

First, that out of them drink may be afforded to man and beast; as it is Psal. 104. 11. *They give drink to every beast of the field: the wild asses quench their thirst, &c.*

Secondly, that running through the earth, as bloud through the bodie, by interlacing it, and sometimes overwhelming it, they make the earth able to produce those fruits which are necessary for the life of man: which benefit of overflowing, so fattens the whole land of Egypt, that the Priests of that countrey did thereupon ascribe the beginning of time, or of every thing that now

now is, to that time of the yeare when their *Nilus* overflowed, or when it first began to lift up it self above the banks, and diffuse an ample portion of manuring bountie into the lap of the land: which is as good to them as if *Jupiter* should descend in a golden shower. And for other places, where there be no such luckie flouds, there it is found that these bounteous watrie bodies yielding vapours, do purchase for them such dropping showers of rain, that *the valleys stand so thick with corn, that they laugh and sing*: and therefore these are great benefits challenging most humble thanks; as it is Psal. 107.

The third is, that they can quell the rage of the hotest element, and keep our mansions from cinders, or a flamie conversion into ashes.

The fourth is, that they yield us an easinesse and speedinesse of conduct and traffick, by which each place partaketh of the blessings of every place.

Yea these, and many more, are the benefits of water, without which the life of man could not be sustained. But here I contract my sails, and end this question: for by coming on the shore, I shall the better view that which remaineth concerning this liquid element. Wherefore it followeth.

Quest. 7. Wherein is shewed the cause of the ebbing and flowing of the sea.

The next and last question propounded, was concerning the fluxion and refluxion of the sea; wherein I purpose (as near as I can) to shew, both why seas have that alternate motion, as also why such murmuring brooks and rivers, as do not ebbe and flow, are destitute of the foresaid courses.

The motion of the sea is either naturall, or violent. The first it performeth on its own accord; the other it doth not, but by some externall force compelling it.

The first, being a naturall motion, is such as is in every other water; namely that all waters do evermore flow into the loweſt place, becauſe they have an heavineſſe

or

or ponderoſitie in them. And thus the ocean naturally floweth from the North, where it is higheſt, unto the South as the lower place: for * there in regard of the great cold, the waters are not onely kept from drying up, but alſo increaſed, whileſt much aire is turned into water: whereas in the South, by reaſon of great heat, they are alwayes ſucked up and diminiſhed. Now this motion is called a motion of Equation; becauſe it is for this end, namely that the *ſuperficies* of the water may be made equall, and diſtant alike on every ſide from the centre of gravitie.

* *Zanch. Tom 3. lib. 4 cap. 1. quæſt. 6. theſ. 1.*

The other, being that which dependeth upon ſome externall cauſe, is ſuch as may be diſtinguiſhed into a threefold motion. One is rapt, and cauſed by force of the heavens, whereby it floweth from * Eaſt to Weſt. The ſecond is a motion of Libration, in which the ſea ſtriving to poiſe it ſelf equally, doth (as it were) wave from one oppoſite ſhore to another. And note that this is onely in ſuch as are but ſtrait and narrow ſeas, being a kind of trepidation in them, or (as I ſaid before) a motion of Libration; juſt like a riſing and falling of the beam of an equall-poiſed balance, which will not ſtand ſtill, but be continually waving to and fro. The third and laſt is *Reciprocatio*, or *Æſtus maris*, called the ebbing and flowing of the ſea.

* Note that this is pertinent to the openeſt ſeas, as the Atlantick and South ſeas, and eſpecially between the Tropicks, where is a conſtant Eaſterly breath cauſed by the ſuperiour motions, which draw together with them, not onely the element of fire, but of the aire and watre alſo.

The cauſe of which hath added no little trouble, nor ſmall perplextie, to the brains of the beſt and greateſt Philoſophers. *Ariſtotle*, that maſter of knowledge, helps us little or nothing in this queſtion. And yet * *Plutarch* affirmeth that he attributed the cauſe to the motion of the ſunne. * Others have gathered from him that he ſeemed to teach, it was by certain exhalations which be under the water, cauſing it to be driven to and fro according to contrary bounds and limits. But howſoever he taught, or whatſoever he thought, this we find, that nothing

* *De plcit. Philoſ. lib. 3. cap. 17.*

* *Dr. Fulk. Meteor. lib. 4.*

nothing troubled him more. For (as* *Cœlius Rhodiginus* writeth) when he had studied long about it, and at the last being weary, he died through the tediousnesse of such an intricate doubt. * Some say he drowned himself in *Negropont* or *Euripus*, because he could find no reason why it had so various a fluxion and refluxion, ebbing and flowing seven times a day at the least; adding, before that his untimely and disastrous precipitation, these words, Ἐπειδὴ Ἀριστοτέλης οὐχ εἷλε τὸν Εὔριπον, Εὔριπος ἐχέτω τὸν Ἀριστοτέλη· *Quandoquidem Aristoteles non cepit Euripũ, Euripus capiat Aristotelem*; That is, *Although Aristotle hath not taken Euripus, yet Euripus shall take Aristotle*: meaning that that should end him, whose cause could not be comprehended by him.

But leaving *Aristotle*, we shall find as little help from his master *Plato*, who (as did also the Stoicks) attributed the cause to the breath of the world. Such also have been the phancies of others; among whom *Kepler* may not be forgotten, who in good earnest affirmeth and believeth that the earth is a great living creature, which with the mightie bellows of her lungs first draweth in the waters into her hollow bowels, then by breathing respires them out again. A prettie fiction this; and vvell vvorthie the pen of some fabling poet, rather then to be spoken in good sober sadnesse, and affirmed as a truth.

Others vvould have the cause to be by reason of vvaters in the holes of the earth forced out by spirits; vvhich comes something near to that before concerning the breath of the vvorld.

A third sort attribute the cause to the circular motion of the earth; affirming that there is a daily motion of the earth round about the heavens, vvhich it performeth in 24 houres: the heavens in the mean time onely seeming to move, and not moving in very deed. This opinion came first from the *Pythagoreans*, and is defended by the

* *Antiquarum lectionum lib. 29. cap. 8.*

* *Just. Mart. Greg. Naz. Aeschines orat. contra Cres. L. Valla Dialog. de lib. arbitrio, &c.*

* *Live* saith that it is not seven times a day; but *tenure in modum venti nunc huc nunc illuc rapitur. lib. 8. dec. 3.*

the *Copernicanians* as an effect of the foreſaid motion. As for example; the earth moving ſwiftly round, the water not able to follow the motion, is left behind, and cauſed to flow to and fro; like as in a broad ſhallow veſſel may be ſeen: for put water in ſuch a veſſel, and let it be ſwiftly pulled forward, and then you ſhall ſee that by being left behind, it will beat it ſelf againſt the one ſide, before the other can at all partake of its company: and ſo it is alſo in the earth, leaving the waters behind whileſt it moveth.

The earth hath no circular motion.

But if this opinion be true; firſt tell me how it comes to paſſe that the ſea doth not ebbe and flow always at one and the ſame time, but altereth his courſe, and is every day about one houre later then other. Secondly, ſhew me why the tides are at one time of the moneth higher then at another. Thirdly, let me be informed why broad lakes and large rivers do not flow as well as ſeas. Fourthly, let me be rightly inſtructed how it comes to paſſe that things tend to the earth as their centre, if the ſunne (as *Copernicus* and his followers imagine) be the centre of the world. Fifthly, ſhew me why the aire in the middle Region is not rather hot then cold: for ſurely if the earth ſhould move round with a diurnall motion, as they maintain, then the middle Region muſt be either farre higher then it is, or elſe the aire would be ſo heated by going round, that the coldneſſe in it would be either little or none at all; for it is a ruled caſe, that *Remotio à motu circulari dat quietem, frigiditatẽ, et gravitatem; ſicut propinquitas dat motum, calorem, et levitatem:* and thereupon it comes to paſſe that we have coldneſſe in the middle Region, the cauſe firſt beginning it being in reſpect of the hills which hinder the aire from following the motion of the heavens; as in * two ſeverall places of the ſecond dayes work I have declared. Sixthly, I would alſo know why an arrow being ſhot upright ſhould

* *Vid.* chap. 4. ſect. 2. and chap. 5. ſect. 2. Paragraph 1.

ſhould fall near upon the ſame place where the ſhooter ſtandeth, and not rather fall beyond him, ſeeing the earth muſt needs carry him farre away whileſt the arrow flyeth up and falleth down again: or why ſhould a ſtone, being perpendicularly let fall on the Weſt ſide of a tower, fall juſt at the foot of it; or on the Eaſt ſide, fall at all, and not rather be forced to knock againſt it? We ſee that, a man in a ſhip at ſea, throwing a ſtone upright, is carried away before the ſtone falleth; and if it be mounted up in any reaſonable height, not onely he which caſt it, but the ſhip alſo is gone. Now why it ſhould be otherwiſe in the motion of the earth, I do not well perceive. If you ſay that the earth equally carries the ſhooter, aire, arrow, tower, and ſtone; then methinks you are plainly convinced by the former inſtance of the ſhip: or if not by that, then by the various flying of clouds, and of birds; nay, of the ſmalleſt graſhopper, flie, flea, or gnat, whoſe motion is not tied to any one quarter of the world, but thither onely whither their own ſtrength ſhall carry them: ſome flying one way, ſome another way, at one and the ſame time. We ſee that the wind ſometimes hindereth the flight of thoſe prettie creatures; but we could never yet perceive that they were hindered by the aire; which muſt needs hinder them if it were carried alwayes one way by the motion of the earth: for from that effect of the earths motion, this effect muſt needs alſo be produced.

Arm'd with theſe reaſons, 'twere ſuperfluous
To joyn our forces with Copernicus.

But perhaps you will ſay it is a thing impoſſible for ſo vaſt a bodie as the heavens to move dayly about the earth, and be no longer then 24 houres before one revolution be accompliſhed: for if the compaſſe were no more then ſuch a diſtance would make as is from hence to Saturns ſphere, the motion muſt extend, in one firſt

*Lanſberg. comment. in motum terræ diur. pag. 7.

ſcruple

ſcruple or minute of time, to 55804 miles; and in a moment, to 930 miles: which is a thing impoſſible for any Phyſicall bodie to perform.

Unto which I muſt firſt anſwer, that in theſe menſurations we muſt not think to come ſo near the truth, as in thoſe things which are ſubject to ſenſe, and under our hands: For we oft times fail, yea even in them, much more therefore in thoſe which are remote, and (as it were) quite abſent, by reaſon of their manifold diſtance.

Secondly, I alſo anſwer, that the wonder is not more in the ſwiftneſſe of the motion, then in the largeneſſe of the circumference: for that which is but a ſlow motion in a little circuit (although it be one and the ſame motion ſtill) muſt needs be an extraordinary motion in a greater circle; and ſo, I ſay, the wonder is not more in the motion then in the largeneſſe of the circumference. Wherefore, he that was able, by the power of his word, to make ſuch a large-compaſſed bodie, was alſo able ſo to make it, that it ſhould endure to undergo the ſwifteſt motion that the quickeſt thought can keep pace with, or poſſibly be forged in imagination: For *his works are wonderfull, and in wiſdome he hath made them all.*

Beſides, do but go on a while, and adhere a little to the ſect of *Copernicus*, and then you ſhall find ſo large a ſpace between the convexitie of Saturns ſphere, and the concavitie of the eighth ſphere (being more then 20 times the diſtance of Saturn from us, and yet void of bodies, and ſerving to no other purpoſe but to ſalve the annuall motion of the earth) ſo great a diſtance, I ſay, that thereby that proportion is quite taken away which God the Creatour hath obſerved in all other things; making them all * in number, weight and meaſure, in an excellent portion and harmonie.

* Wiſd. 11. 20.

Laſt of all, let me demand how the earths motion and heavens

heavens reſt can agree with holy Scripture. It is true indeed (as they alledge) that the grounds of Aſtronomie are not taught us in Gods book: yet when I heare the voice of the everlaſting and ſacred Spirit ſay thus, * *Sun ſtand thou ſtill, and thou Moon in the valley of Ajalon*, I cannot be perſwaded either to think, teach, or write, that the earth ſtood ſtill: but the ſunne ſtood, and the moon ſtayed, untill the people had avenged themſelves on their enemies. Neither do I think after this that it vvas the earth vvhich vvent back, but the ſunne upon Ahaz his diall in the dayes of Ezekias. For vvhen God had made the earth, vvhat ſaid he? did he bid it move round about the heavens, that thereby dayes, vveeks, moneths and years might be produced? No. What then? This vvas its office, and this that vvhich it ſhould do; namely * bud and bring forth fruit for the uſe of man. And for motion, it was abſolutely and directly beſtovved upon the heavens and ſtarres: vvitneſſe thoſe very vvords appointing to the ſunne and moon their courſes; ſetting them in the heavens ſo as they ſhould never reſt, but be for ſignes, and for ſeaſons, for dayes and for years. And ſo alſo the vviſe * Siracides underſtood it, ſaying, *Did not the ſunne go back by his means, and was not one day as long as two?*

I conclude therefore, and concluding cannot forget that ſvveet meditation of a religious and learned * Prelate, ſaying, *Heaven ever moves, yet is that the place of our reſt: Earth ever reſts, yet is that the place of our travell and unreſt.*

And novv, laying all together, if the cauſe be taken avvay, the effect periſheth. My meaning is no more but thus; that ſeeing the earth is void of motion, the ebbing and flovving of the ſea cannot be cauſed by it, but dependeth upon ſome other thing.

Or again, vvere it ſo that the earth had ſuch a motion,

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*Joſh. 10. 12, 13.

Eſay 38. 8.

*Motus terræ is nothing but Germinatio terræ.

Gen. 1.

*Ecclus. 46. 4.

* Biſh. Hall.

I ſhould ſcarce believe that this ebbing and flowing depended on it. For (as I ſaid before) if this were the cauſe, it could never be that the courſe of ebbes and flouds ſhould keep ſuch a regular alteration as they do day by day: Neither could it produce a cauſe why the tides ſhould be more at one time of the moneth then at another: Nor yet (as ſome ſuppoſe) could the waters be ſuffered to flow back again, but alwayes muſt be going on as faſt as they can, toward the Eaſtern part of the world. But I leave this and come to another.

It was a mad phancie of him who attributed the cauſe to an Angel, which ſhould ſtand in a certain place of the world, and ſometimes heave up the earth above the waters, ſometimes conſtraining it to ſink below them. In an ebbe, he heaves it up; and in a floud he lets it ſink.

As improbable alſo is that of ſome others who imagine one Angel to be an Angel of the water, whoſe office is (as in the pool of *Betheſda*) to move the waters to and fro: and for proof of this, that place is alledged in the * Revelation, where when the vials were poured out upon the kingdome of the beaſt, one of the Angels is called an Angel of the waters. But know that the ſame anſwer made before concerning the moving of the winds, will ſerve to ſtop this gap. Or were it ſo that we muſt be tied to a literall ſenſe, the compulſion overthrows the aſſertion; becauſe he is called an Angel of the waters, not for that he cauſeth them to ebbe and flow, but becauſe it was his office to corrupt them and turn them into bloud.

*Revel. 16. 5.

More probable was their opinion who attribute the cauſe to certain ſubterranean or under-ſea fires, whoſe matter is of near akin to the matter of the Moon; and therefore, according to her motion, they continue their times of burning: and burning, they make the ſea

ſo to boyl as that it is a tide or high-water; but going out, the ſea ſinks again.

But now if this opinion were true, then the water in a tide would be thinner, through the heat which cauſeth it to aſcend, thinner then at other times: and ſo a ſhip carrying one and the ſame weight would ſink deeper in a floud then in an ebbe; which experience ſhews to be otherwiſe. Yea were it ſo that there were ſuch ſuppoſed fires in the bottome of the ſea cauſing it to ſwell up like boyled water, then it would alſo follow that the ſea water would be ſo hot that it might not be touched: For if the heat of the ſuppoſed fire be ſufficient to make it aſcend, it is ſufficient alſo to make it hot: which would appear leſſer in an ebbe then in a floud.

This is the moſt probable cauſe why the Sea ebbs and flows.

Wherefore, omitting theſe and the like opinions, the moſt allowable is to attribute this flux and reflux, to the effects of the divers appearances of the Moon: For we ſee by experience, that according to the courſes of the Moon, the tides are both ordered and altered. By which it is not improbable that the waters are drawn by the power of the Moon, followving her daily motion, even as ſhe is carried vvith the *Primum Mobile*. Yea vvere it not ſo that the ſea vvere hindered by ſome accident, ſome have ſuppoſed that theſe vvaters vvould go round from Eaſt to Weſt in 24 houres; and ſo round again, even day by day. The accident hindering this circular motion, is in regard that the Weſt ocean ſea is ſhot in betvveen the firm land of America on the Weſt part, and the main land of Africa and Europe on the Eaſt part. But vvere it ſo that there vvere no ſuch accidentall let in the ſea, to be hindered by the land, it vvould orderly followv the Moon, and go daily round: And ſeeing alſo it is hindered by ſuch an impediment, it is a probable conjecture to think, that it cannot but be forced to retire;

tire; for the firm land beats it back again. Thus Mr *William Bourn*, in the 5 book of his treasure for travellers, chap. 6. determineth.

Others there be who attributing the cause to the moon, do demonstrate it after another manner; namely that through her influence she causeth these alternate motions: and this influence of hers worketh according to the quadrate and opposite aspects of her position in the heavens; or according to the quadrate and opposite configurations from that place where she was at the beginning. For the seas, * saith a well learned Writer, begin to flow when the moon by her diurn rapt motion from East to West, cometh to the nine a clock point in the morning, or is South-east: then they will continue flowing untill she come to a quadrate aspect, or to 90 degrees, which will be about 3 of the clock in the afternoon, or be South-west, when they cease from flowing and begin to ebbe, continuing so untill she come to 180 degrees, or the opposite place, which will be somewhat after nine of the clock at night, being the opposite place to that from which she began her flowing. Then again they begin to flow, and so continue untill she attain to 270 degrees from her first place, which will be after three in the morning. And then lastly they begin to ebbe, and so continue still, untill the moon come to that place where she was at the beginning: for there the floud begins again. Thus it is ordinarily; yet her illumination, the sunne and other starres may hasten hinder or something alter the moons influence, as we see in spring-tides, at the change and full; and neap-tides, at quarters and half quarters of the moon: confessed by * those who have been great masters in Astrologie.

And let this also be known, that though the moon have dominion over all moist bodies, yet not alike, because of other causes concurring; as the indisposition or

* Sir Christopher Heydon, in his defence of Judiciall Astron. chap. 21. pag. 432.

* Lilly, pag. 483. p. 21.

Why all ſeas do not ebbe & flow.

unfitneſſe of the ſubject, or for want of matter, and the like conſiderations. As for example, though it be probable that there be tides *in mari Atlantico*, yet they are not to be perceived, by reaſon of the vaſt wideneſſe and profunditie thereof: in other places alſo of the ſea are no tides, being hindered by the ſtrength of ſome current, which prevaileth: and in freſh water there is no tide, becauſe of the raritie, thinneſſe, and ſubtiltie thereof, which cannot retain the influence of the moon.

Why freſh waters do not ebbe and flow.

And note alſo that in ſuch havens and rivers as ebbe and flow, there may be great diverſitie; which cometh to paſſe both according to the indraught, as alſo by reaſon of the crooked and narrow points and turnings of the banks, which do let and ſtay the tide from that which is the common and ordinary courſe in the main bodie of the ſea: but afterwards, when it is in, and hath taken his ſway, then it cannot ſo ſoon reverſe back, but muſt continue untill the water behind it be deſcended or ebbed into the ſea. The river *Thames* may ſerve as an inſtance in this: for it is not a full ſea in all places of it at one inſtant, being three parts of a floud at the lands end, before it can be any floud at *London*. But were it ſo that there were no creeks, iſlands, ſtraits, turnings, or other accidentall hinderances, then there ſhould be no difference found in any ſea, but the whole bodie ſhuold be ſwayed up and down with a conſtant courſe: whereas ſince it is otherwiſe, the times for every ſuch place muſt be once found out, that thereby they may be known for ever.

Wherefore the cavils of ſome men are nothing worth who by bringing particular and rare (perhaps vain) examples, do think to take away this power from the moon. For ſith this lunar regiment is pertinent to moſt ſeas, and that all our ocean doth follow her; the exceptions taken from certain ſtraits, creeks, bayes, or ſuch

ſuch like places, ought to be referred to accidentall hinderances; as to the unaptneſſe of the places, rocks, qualities of the regions, differing nature of the waters, or other ſecret and unknown impediments; ſuch as manifeſt themſelves in *Cambaia*. For it is reported, that there, although the tides keep their courſe with the moon, yet it is contrary to the courſe they hold in theſe parts; for they are ſaid to increaſe, not with the full of the moon, but with the wane; and ſo the ſea-crabs do likewiſe: amongſt other things the nature of the water and qualitie of the region may much avail to this, if it be true. And in the iſland of *Socotora* (ſaith Mr *Purchas*) Don John of *Caſtro* obſerved many dayes, and found (contrary both to the Indian and our wont) that when the moon riſeth, it is full ſea, and as the moon aſcends, the tide deſcends and ebbeth, being dead low water when the moon is in the meridian. Theſe things are thus reported, and if they ſhould be true, yet we muſt knovv that they are but in particular ſeas, as I ſaid before, where a generall and univerſall cauſe may be much hindered, and in a manner ſeem as if it were altered.

They that deſcend the brinie waves
Of liquid Thetis flouds,
And in their ſhips of brittle ſtaves Pſal. 107. 23, 24.
Trade to augment their goods;
Theſe men behold, and in the deeps they ſee
How great Gods wonders of the waters be.

I conclude therefore, and cannot but ſay, that this is as great a ſecret, to be in every point diſcuſſed and unfolded, as any nature can afford: *Arcanum enim naturæ magnum eſt*, It is a great ſecret of nature, and gives us therefore principall occaſion to magnifie the power of God, whoſe name onely is excellent, and whoſe power above heaven and earth.

Laſt of all, this is the finall cauſe of the ſeas motion:

God hath ordained it for the purging and preſerving of the waters. For as the aire is purged by winds, and as it were renewed by moving to and fro; ſo this motion keeps the waters of the ſea from putrefaction.

An Appendix to the former Section, wherein the properties and vertues of certain ſtrange rivers, wells, and fountains, are declared.

I Do not well know how to end this diſcourſe of waters, before I have ſpoken ſomething of the ſtrange properties that are in certain rivers, wells, and fountains. Some are hot, becauſe they are generated and flow out of veins of brimſtone, or receive heat from thoſe places where ſubterranean fires are nouriſhed. For this is a generall rule, that all waters differ according to the qualitie of the place from whence they ariſe. Some again are ſowre or ſharp like vineger; and theſe runne through veins of allome, copperas, or ſuch minerals. Some may be bitter, that flow out of ſuch earth as is bitter by aduſtion or otherwiſe. Some may be ſalt, whoſe current is through a ſalt vein. And ſome may be ſweet; theſe are ſuch that be well ſtrained through good earth, or runne through ſuch mineralls as be of a ſweet taſte.

Our baths in the Weſt countrey, and S. Anne of Buckſtones well in the North part of *England*, & many other elſewhere, are hot. *Ariſtotle* writeth of a well in *Sicilie*, whoſe water the inhabitants uſed for vineger: and in divers places of *Germanie* be ſprings which harbour much ſharpneſſe. In *Bohemia*, near to the citie called *Bilen*, is a well (ſaith Dr *Fulk*) that the people uſe to drink of in the morning, in ſtead of burnt wine. And ſome (ſaith he) have the taſte of wine; as in *Paphlagonia* is a well, that maketh men drunk which drink of it: now this is, becauſe that water receiveth the fumoſitie of brimſtone,

Water uſed in ſtead of vineger.

Water uſed in ſtead of burnt wine.

Water which makes men drunk.

brimſtone, and other minerals, through which it runneth: and retaining their virtue, it filleth and entoxicateth the brain, as wine doth. For it is poſſible that fountains may draw ſuch efficacie from the mines of brimſtone, that they may fill their brains with fume that drink thereof, who alſo become drunk therewith. To which purpoſe *Ovid* ſpeaketh thus,

Quam quicunque parùm moderato gutture traxit,
Haud aliter titubat, quàm ſi mera vina bibiſſet.
Which whoſo draws with an immoderate throat.
Trips, as his brains in mere good wine did float.

And *Du Bartas* alſo,

Salonian fountain, and thou Andrian ſpring,
Out of what cellars do you daily bring
The oyl and wine that you abound with ſo?
O earth, do theſe within thine entralls grow?
What? be there vines and orchards under ground?
Is Bacchus trade and Pallas art there found?

Ortelius, in his Theatre of the world, makes mention of a fountain in *Ireland*, whoſe water killeth all thoſe beaſts that drink thereof, but not the people, although they uſe it ordinarily. A water which is deadly to beaſts, but not to men.

It is alſo reported, that near to the iſle *Ormus*, there is a great fountain found, the water whereof is as green as the field in ſpring-time, and ſalt as the ſea. He which drinketh but a little of it, is incontinently taken with a violent ſcowring: and he that drinketh very much thereof, dieth without remedie. A purging killing water.

Ælianus makes mention of a fountain in *Bœotia* near to *Thebes*, which cauſeth horſes to runne mad, if they drink of it. A water which makes horſes mad.

Plinie ſpeaketh of a water in *Sclavonia* which is extreamly cold; yet if a man caſt his cloth cloak upon it, it is incontinently ſet on fire. A cold burning water.

Ortelius again ſpeaketh of a boyling fountain, which A water which will both roſt and bake.

will preſently ſeethe all kind of meat put into it: it will alſo bake paſte into bread, as in an oven well heated. This is ſaid to be in the iſle of *Grontland.*

A river which breedeth flies.

The river *Hypanis* in Scythia every day brings forth little bladders, out of which come certain flies. They are bred in the morning, fledge at noon, and dead at night: wherein mankind is alſo like them. For his birth is as his morning; his ſtrongeſt time, or his middle time (be his time long or ſhort) is as his noon; and his night is that, when he takes leave of the world, and is laid in the grave to ſleep with his fathers: For this hath been the ſtate of every one, ſince firſt the world had any one. The day breaking, the Sunne ariſeth; the Sunne ariſing continues moving; the Sunne moving, noontime maketh; noontime made, the Sunne declines; the Sunne declining threatens ſetting; the Sunne ſetting, night cometh; and night coming, our life is ended. Thus runnes away our time. If he that made the heavens Sunne, hath ſet our lives Sunne but a ſmall circumference, it will the ſooner climbe into the noon, the ſooner fall into the night. The morning, noon, and evening (as to thoſe flies) theſe three conclude our living.

A water which maketh oxen white.

Clitumnus, ſaith *Propertius*, *lib.* 3. is a river or ſpring in Italie which maketh oxen that drink of it, white. Dr. *Fulk* yieldeth this reaſon, namely becauſe the qualitie of the water is very flegmatick, *Fulk. Met. lib.* 4.

Water which maketh ſheep black or white.

Plinie ſpeaketh of the river *Melas* in *Bœotia*, which maketh ſheep black: But *Cephiſus*, another ſtream which flows out of the ſame lake, makes them white. See *Plin.* in the 103. chap. of his 2 book.

Water which makes them red.

Plinie alſo, in the former book and chapter, makes mention of the river *Xanthus*, which will make the flocks turn red, if they drink the water. *Solinus* affirmeth the like of a fountain in *Arabia* near to the Red-ſea, ſaying, *in littore maris iſtius fontem eſſe, quem ſi oves biberint,*

rint mutent vellerum qualitatem, at fulvo poſtmodum nigreſcant colore. To vvhich purpoſe vve may heare *Du Bartas* deſcant thus,

* *Cerona, Xanth, and Cephiſus, do make*
The thirſty flocks, that of their waters take,
Black red, and white: And near the crimſon deep,
Th' Arabian fountain maketh crimſon ſheep.

* *Plin. lib.* 31. *cap.* 2. See alſo *lib.* 2. *cap.* 103.

Seneca ſpeaketh of a river vvhich maketh horſes red. Novv thele things may be, as Dr. *Fulk* yields probable conjecture, in that the qualitie of the vvater may alter the complexion; and the complexion being altered, the colour of their vvool and hairs may be changed. *Ariſtotle*, in his 3 book, chap. 12. *de hiſtor. animal.* maketh mention of ſuch like waters alſo: as there is a river in *Aſſyria*, called *Pſychrus*, of that coldneſſe, vvhich cauſeth the ſheep that drink thereof to yean black lambes: in *Antandria* there are tvvo rivers, the one maketh the ſheep vvhite, the other black: the river *Scamander* doth die them yellovv. Dr. *Will.* in his Hexap. on Gen. *ex Ariſtot.*

A water like to the former.

Plinie makes mention of the Hammonian fountain, ſaying, *Jovis Hammonis fons interdiu frigidus, noctibus fervet*; The fountain of Jupiter Hammon is cold in the day time, and hot in the night. Like unto vvhich is that vvhich he calleth the fountain of the Sunne; excepting that the vvater is ſvveet at noon, and bitter at midnight: but for the times of cold and heat, it is like to the other fountain. *lib.* 2. *cap.* 103. Some ſeem to think that this may be the reaſon, namely, that the cold humidity of the night nouriſheth the heat, and by an *Antiperiſtaſis* cauſeth it to reinforce it ſelf invvard: but by day (the Sunne-beams ſucking up that heat vvhich is in the ſurface, that is to ſay, above) the vvater remaineth cold. Others determine thus, ſaying that this may be by the ſame reaſon that vvell-vvater is colder in ſummer then it is in vvinter.

A water cold in the day, and hot in the night.

We

A water turning wood into ſtone.

We have in *England* wells which make wood and all things elſe that be caſt into them, ſtones: the cauſe whereof is great cold.

A river which reſts every ſeventh day.

Joſephus, de Bello Judaic. lib. 7. cap. 24. writeth that there is a river in *Paleſtine*, which paſſeth between two cities, called by theſe names, *viz. Arcen*, and *Raphanee*, which river is admirable for an extraordinarie ſingularitie: namely, that having entertained his violent and ſwift courſe for the ſpace of ſix dayes, on the ſeventh it remaineth dry: which being paſt, it runneth as before; and therefore it is called the river of the Sabbath: * *Du Bartas* calleth it the Jews religious river,

Keeping his waves from working on that day
Which God ordain'd a ſacred reſt for ay.

*In his 3 day.

A ſtrange well in *Idumea*.

In *Idumea* was a well, which one quarter of the yeare was troubled and muddy, the next quarter bloudie, the third green, and the fourth clear. *Iſidore* makes mention of this, and it is called the fountain of Job.

Poyſoning waters.

Seneca and others affirm that there be rivers whoſe waters are poyſon: now this may be, in regard that they run through poyſonous minerals, and receive infection from their fume, and the like. Such is the water *Nonacrinis* in *Arcadia*: of which it is recorded, that no veſſell of ſilver, braſſe, or iron, can hold it, but it breaketh in pieces; onely a mules hoof and nothing elſe can contain it. * Some write that *Alexander* the great, through the treacherie and plots of *Antipater*, was poyſoned with this water. *Curtius* calleth it the water of *Styx*, *lib.* 10. *juxta finem.*

*Plutarch. See alſo Juſt. *lib.* 12. and Curt. *lib.* 10.

A water which makes cattell give black milk.

In an iſle of *Pontus*, the river *Aſtaces* overfloweth the fields; in which whatſoever ſheep or other milch cattell be fed, they alwayes give black milk. This river *Plinie* forgetteth not, *lib* 2. *cap.* 103.

Poyſoning waters.

It is reported that in *Poland* is a fountain ſo peſtilent, that the very vapour thereof killeth beaſts when they approch unto it.

There

There be ſome waters which make men madde who drink of them. Which is, in a manner, by the ſame reaſon that other fountains have made men drunk.

Water which makes men mad

Some again ſpoil the memorie, and make men very forgetfull: which may very well be, by procuring obſtructions in the brain. *Fulk.*

A water that ſpoils the memorie.

Seneca ſpeaketh of a water, that being drunk provoketh unto luſt. *Plinie*, in the ſecond chapter of his 31 book, ſpeaketh of certain waters in the Region of *Campania*, which will take away barrenneſſe from women, and madneſſe from men. And in *Sicilia* are two ſprings: one maketh a woman fruitfull; the other, barren.

A water which procureth luſt.

The foreſaid *Plinie*, in the ſame book and chapter, ſaith that the river *Amphryſus* or *Aphrodiſium*, cauſeth barrenneſſe.

A water which cauſeth barrenneſſe, & another which cauſeth the teeth to fall, &c.

And again, in his 25 book and 3 chapter, he ſpeaketh of a ſtrange water in *Germanie*, which being drunk, cauſeth the teeth to fall out within two years, and the joynts of the knees to be looſed.

Lechnus, a ſpring of *Arcadia*, is ſaid to be good againſt abortions.

In *Sardinia* be hot wells that heal ſore eyes: and in *Italie* is a well which healeth wounds of the eyes. In the iſle of *Chios* is ſaid to be a well which makes men abhorre luſt: and in the ſame countrey, another whoſe propertie is to make men * dull-witted. Now theſe and the like qualities may as well be in waters vvhich are mixed vvith divers minerals and kinds of earth, as in herbs, roots, fruits, and the like.

*For this ſee *Plinylib.* 31. *cap.* 8. where alſo you may read of another that ſharpeneth the ſenſes.

The lake *Pentaſium* (as *Solinus* ſaith) is deadly to ſerpents, and vvholſome to men. And in *Italie*, the lake *Clitorie* cauſeth thoſe that drink of it to abhorre wine. *Fulk. Met. lib.* 4.

Ortelius, in the deſcription of *Scotland*, maketh mention of divers fountains, that yield forth oyl in great quantity:

Fountains of oyl.

quantity: vvhich cometh to paſſe by reaſon of the viſcoſitie or fatneſſe of the earth vvhere they paſſe, and from vvhence they ariſe. The like may be alſo ſaid concerning pitchie ſtreams, &c.

Waters of a ſtrange temper.

Some vvaters are of that temper, that men ſink not in them, although they knovv not hovv to ſvvim. The like lake is ſaid to be in *Syria*, in vvhich (as *Seneca* relateth) no heavie thing vvill ſink.

Of the fountain *Dodoni*.

That vvhich *Plinie* vvriteth of the fountain *Dodone*, *lib.* 2. *cap.* 103. is very ſtrange: vvhereupon *Du Bartas* makes this deſcant,

What ſhould I of th' Illyrian fountain tell?
What ſhall I ſay o' th' Dodonean well?
Whereof the firſt ſets any clothes on fire;
Th' other doth quench (who but will this admire?)
A burning torch; and when the ſame is quenched,
Lights it again, if it again be drenched.

There be ſome vvells, vvhoſe vvaters riſe and fall, according to the ebbing and flovving of the ſea, or of ſome great river unto vvhich they are near adjoyned. The reaſon therefore of this is plain.

Waters which work miracles.

But ſtrange is that vvhich Dr *Fulk* mentioneth of the river *Rhene* in *Germanie*, vvhich vvill drovvn * baſtard children that be caſt into it, but drive to land them that be lawfully begotten. Or is not this ſtrange vvhich he alſo mentioneth of a certain vvell in *Sicilia*, vvhereof if thieves drink, they are made blind by the efficacie of the vvater? The like I find in other Authours concerning certain fountains in *Sardinia*: for it is ſaid that they have this marvelous propertie; namely, that if there be a cauſe to dravv any one to his oath, he that is perjured and drinketh thereof, becometh blind, and the true vvitneſſe ſeeth more clearly then he did before. *Solinus* and *Iſiodore* report it.

*In which he was deceived: it was rather to try their ſtrength, and make them hardie; as *Feſtegan* well declareth, *Reſtitut. cap.* 2. *pag.* 45.

Solinus alſo and **Ariſtotle* make mention of a vvater called

**De admirandis cap.* 51. & 52.

called the *Eleuſinian* or *Haleſinian* ſpring, which, through the noiſe of ſinging or muſick, is moved as if it danced or capered up and down: whereas at other times it is ſtill and quiet. But I conclude, and (as that * honoured Poet) cannot but ſay,

Sure in the legend of abſurdeſt fables
I ſhould enroll moſt of theſe admirables,
Save for the reverence of th' unſtained credit
Of many a witneſſe, where I yerſt have read it;
And ſaving that our gain-ſpurr'd Pilots find,
In our dayes, waters of more wondrous kind.

* *Du Bart.* 3 day.

Unto which (in things that are ſtrange, and not fabulous) let this alſo be added, that God Almighty hath propoſed infinite ſecrets to men, under the key of his wiſdome, that he might thereby humble them; and that, ſeeing what mere nothings they are, they might acknowledge that all are ignorant of more then they know: for indeed this is a rule, *Maxima pars eorum quæ ſcimus, eſt minima pars eorum quæ neſcimus*; *The greateſt part of thoſe things which we know, is the leaſt part of thoſe things which we know not.*

We ought to make the beſt uſes of the ſtrangeſt things.

Sect. 3.

Of the drie-land appearing after the gathering of the waters.

THe waters were no ſooner gathered, but the drie-land then appeared: and this may be called the ſecond part of the third dayes work. For the end of the gathering of the waters was, that the earth might ſhew it ſelf; and not onely ſo, but that alſo it might appear ſolid and drie.

Two things therefore (ſaith *Parens*) did the earth in this act principally receive: one was that it might be conſpicuous; the other, that it might be ſolid and drie: and

and both depended upon the law of great neceſſitie.

For firſt, had it been continually covered with waters, how could it have been a place for habitation? either man muſt have been otherwiſe then he is, or elſe the earth muſt, as it was, be uncovered.

Secondly, were it uncovered, and not alſo drie and ſolid, it could not conveniently have bore up thoſe living creatures, weights, and other things, which tread and preſſe upon it. Whereupon Expoſitours well witneſſe, that earth is ſo named from the Hebrew *Erets*: which (ſay they) implieth a thing trod and runne upon by the creatures on it, and heavenly orbs about it. The ſame word ſpoken of particular places, is engliſhed *land*; as the land or earth of Canaan, and the like.

Here then it appeareth, that this was that time when the earth received her proper elementarie qualitie: which it had potentially before, but not actually till now. Now therefore, it being not onely uncovered, but alſo made drie, it might eaſily be diſtinguiſhed from the other three elements of fire, aire, and water. For the proper qualitie of the fire is heat; of the aire, is *moiſture; of the water, is coldneſſe; and of the earth, is drineſſe. Theſe qualities, I ſay, are moſt proper and peculiar to them: yet ſo, as the aire is not onely moiſt, but of a moderate heat, as being neareſt to the element of fire; the water not onely cold, but alſo moiſt, as coming neareſt to the nature of aire; and the earth, not onely drie, but ſomething cold, as being hoaſt or landlord to the water: and upon theſe terms the elements are combined together; there being in all an harmonious order: pointing to him, who in number, weight, and meaſure, hath conſtituted all things.

I will not go about to prove that the earth is the centre of the world, for fear I ſhould be like to him, who diſputed whether ſnow were white: onely I will adde, that

* *Humiditas non eſt aſſumenda ex irrigatione, ſed ex propria definitione, quod ſcilicet difficulter alterius termino claditur. Jam videmus aquam includi facilius certis limitibus quam aerem, ergo &c. Quòd autem aqua magis humectat, id fit propter craſſiorem ſubſtantiam. Cum enim humiditas aquæ in denſiore materia hæreat, ideo eſt magis mota, & proinde efficacior ad humectandum. Aeris verò humiditas tam craſſam ſubſtantiam, ſicut aqua, non habet, & propterea tantum madorem corporibus præbere nequit: & quod quandoque exſiccare videatur, id non eſt per ſeipſa per accidens, putà per exhalationes, &c.*

that even as an infant is potentially rationall by nature, but is made rationall in act by youth or years; ſo it was with the earth, both before and after the drying of it. Unto which let this alſo be joyned, that the earth is not ſo arid or drie that it is void of all moiſture: for then it would be diſſolved and fall into duſt. But it is arid and dry, that it might be ſolid and firm; retaining in the mean time, even in the ſolid parts of it, ſuch a conveniencie of humour, that all parts may both be glewed together, and alſo have ſufficient nutriment for the things, which, like to a teeming mother, ſhe either bringeth forth, or nouriſheth in her wombe.

Thus was the earth prepared: and thus was it made a fit habitation for man to dwell on. But, as if man were not alwayes worthy to tread upon ſuch a ſolid foundation, we ſee it often ſhakes, and quakes, and rocks, and rends it ſelf: as if it ſhewed that he which made it, threatened, by this trembling, the impietie of the world, and ruines of thoſe which dwell upon the earth. For though the * efficient, * materiall, and * formall cauſes of an earthquake be naturall; yet the finall is the ſignification of an angry God, moved by the execrable crimes of a wicked people: according to that of David in the 18 Pſalme at the 7 verſe. *The earth trembled and quaked: the very foundations of the hills alſo ſhook and were removed, becauſe he was wroth.*

Fear chills our hearts. What heart can fear diſſemble
When ſteeples ſtagger, and huge mountains tremble?

The Romanes, in times paſt, commanded by publick edict, that prayers and ſupplications ſhould be made in time of an earthquake: but they muſt call upon no god by name, as on their other holy-dayes, for fear they miſtook that god unto whom it belonged.

And the moſt ancient of the Grecians called *Neptune* the ſhaker and mover of the earth; becauſe they ſuppoſed

* *Efficiens eſt calor ſolis, & ſimul ignis ſubterranei, quibus ſuppeditant vires ſuperiores planetæ.*
* *Cauſa materialis eſt ſpiritus ſeu vapor, in terræ viſceribus concluſus, & vix contendens.*
* *Forma eſt ipſa concuſſio terræ & agitatio exhalationum terræ incluſarum.*

ſed that the cauſe proceeded from the fluctuations and ſlowings of waters up and down in the hollow places under ground.

Others thought that the ſhaking proceeded from the downfalls of ſubterranean dens or caves; and that ſometimes whole mountains ſunk in, and they cauſed the trembling.

The cauſe of earthquakes.

But by that which I ſaid before in the generation of winds, it appeareth, that what it is, which is the cauſe of winds above the earth, is alſo the cauſe of trembling and ſhaking in the earth. For when it happeneth that aire and windie ſpirits or Exhalations be ſhut up within the caverns of the earth, or have ſuch paſſage as is too narrow for them, they then ſtriving to break their priſons, ſhake the earth, and make it tremble. Now this impriſonment is ſaid to be cauſed thus; namely, when the earth, which is drie by nature, happeneth to be watred by continuall rains; then, not onely the pores and caverns thereof are ſtopped and cloſed up, but even the aire and Exhalations within the earth are increaſed. To which purpoſe, Dr *Fulk*, in the third book of his Meteors, writeth, ſaying, *The great caves and dens of the earth muſt needs be full of aire continually* (for there is no *vacuum* in nature:) *but when by the heat of the Sunne, the moiſture of the earth is reſolved, many Exhalations are generated, as well within the earth, as without; and whereas the places were full before, ſo that they could hold or receive no more except part of that which is in them be let out, it muſt needs follow that in ſuch countreys where the earth hath few pores, or elſe where they be ſtopped with moiſture, that there, I ſay, theſe Exhalations ſtriving to get out, do either rend the earth, or lift it up; that thereby either a free paſſage may be had, or elſe room enough to abide within.* I am perſwaded, that as in other winds, there be alſo in this, ſubterranean

ranean fires, which help to move and ſtirre the Vapours and Exhalations. Neither do I think that the Sunne is the onely cauſe of ſhutting the pores of the grounde for then earthquakes would in a manner be as frequent and common, as dryings after a rain: Some of the other Planets therefore have their operation in this effect. Which (as Aſtrologers witneſſe) is *Saturn*, being of an aſtringent nature: and chiefly in earthie ſignes muſt this be produced. For (ſay they) *if *Saturn* have the ſole dominion either in the revolution of the world, or in any great conjunction, or in the ecliptick place, and be ſtrong in earthie ſignes (ſuch as be *Taurus*, *Virgo*, and *Capricorn*) and ſhall behold the Moon, when ſhe is impedite, with a quadrate or oppoſite aſpect, then he foreſheweth that there will be an earthquake. And queſtionleſſe this is not altogether idle: For the influence of the Planets is divers, and may as well (according to their places and poſitions) work theſe effects, as have any power at all in the changes and alterations of the aire, in the producing of Meteors, cheriſhing of plants, and the like. And happily it is not *Saturn* onely, nor the bright beams of the Sunne, but other of the Planets alſo being conveniently placed and diſpoſed, which helpeth forward this ſad effect.

*Origenus de effect. cap. 9. ex Haly &c.

Authours vary about the kinds of earthquakes; ſome making more, ſome fewer kinds.

The kinds of earthquakes.

Ariſtotle, De Meteoris lib. 2. cap. 8. maketh onely two *Tremor*, and *Pulſus*; a *Trembling*, and a *Beating*. Some adde a third, which they call *Hiatus*. Others make ſeven. And ſome adde onely foure: to which may be joyned a fifth.

The firſt is, when the whole force of the wind driveth to one place, there being no contrary motion to let or hinder it. Many hills and buildings have been ruſhed down by this kind of earthquake, eſpecially

when the wind cauſing it, was ſtrong: For if it be a feeble wind, it onely looſeth or unfaſteneth foundations: if leſſe feeble, then without further harm, the earth onely ſhakes, like one ſick of an ague. This is called a laterall, or ſide-long ſhaking.

The ſecond is not ſo much laterall as perpendicular or upright; which is when the earth with great violence is ſo lifted up, that the buildings are like to fall, and by and by ſinketh down again: For after the wind, that cauſed the earth to ſwell, is broke out of priſon, the earth returneth to his old place, even as it was before.

The third kind is *Hiatus*, a gaping, rending or cleaving of the earth, one part being driven ſo farre from another, that whole towns, cities, hills, rocks, rivers, ſeas, and the like, are ſwallowed up and never ſeen again.

The fourth is a ſhaking that cauſeth ſinking; and is farre differing from the former: For now the earth ſplitteth not, but ſinketh; this being in ſuch places, where, though the ſurface of the ground be ſolid, yet it hath but a ſalt foundation; which being moiſtened with water driven through it by the force of the ſhaking Exhalation, is turned into water alſo. Thus was the Atlantick Ocean cauſed to be a ſea, whereas before it was an iſland; according to the * teſtimonie of famous *Plato*, who lived in his flouriſhing fame about 366 years before Chriſt was born: and before his time it was that this iſland ſunk.

* *Plat. in Timæo.*

A digreſſion touching the new found world.

Where, by the way, in a word or two may be diſcuſſed, not ſo much how the late diſcovered parts of the world came to be peopled, as how at the firſt to be unknown.

Concerning which, this I think may be ſuppoſed, that *America* was ſometimes part of that great land which

Plato

Plato calleth the Atlantick iſland, and that the Kings of that iſland had ſome intercourſe betvveen the people of *Europe* and *Africa*. Some have related that they vvere the ſons of *Neptune*, and did govern part of *Europe* and *Africa*, as vvell as of the ſaid iſland: in vvhich regard there vvas knowledge of the late known parts long ago. But vvhen it happened that this iſland became a ſea, time vvore out the remembrance of remote countreys: and that upon this occaſion, namely by reaſon of the mud and dirt, and other rubbiſh of the iſland. For vvhen it ſunk, it became a ſea, vvhich at the firſt vvas full of mud; and thereupon could not be ſailed, untill a long time after: yea ſo long, that ſuch as vvere the ſea-men in thoſe dayes, vvere either dead before the ſea came to be clear again, or elſe ſunk vvith the iſland: the reſidue, being little expert in the art of navigation, might, as neceſſitie taught them, ſail in ſome certain boats from iſland to iſland; but not venturing further, their memorie periſhed. And not onely ſo, but alſo thus: this iſland ſinking might ſo damp up the ſea, that neither thoſe that vvere in theſe parts did ever attempt to ſeek any land that vvayes to the Weſtvvards; nor yet thoſe vvho where remaining upon that part of the iſland that did not ſink, vvould ever attempt to ſeek any land unto the Eaſtvvards: and ſo the one forgot the other.

More I might ſay touching this thing: but this (perhaps) is more then enough. Yet that ſuch an iſland vvas, and ſvvallovved by an earthquake, I am verily perſvvaded: and if *America* joyned not to the Weſt part of it, yet ſurely it could not be farre diſtant, becauſe *Plato* deſcribes it as a great iſland: neither do I think that there vvas much ſea betvveen *Africa* and the ſaid iſland. But I leave this digreſſion and proceed.

The fifth kind of earthquake is contrary to the former: for as before the ground ſinks dovvn, ſo novv it is

caſt up, like as in the ſecond kind already mentioned: onely this is the difference, that now it returneth not to its place again, but remaineth a great mountain: an embleme whereof may be ſeen in the buſie mole caſting up hills in a plain ground. And note that if ſuch a riſing be in the ſea, it not onely cauſeth overflowings, but produceth likewiſe many iſlands, ſuch as were never ſeen before. And thus there may be five ſeverall kinds of earthquakes.

The attendants of an earthquake.

Know alſo that an earthquake hath both his *Antecedentia*, and *Subſequentia*.

The *Antecedentia* are the ſignes which go before it, and ſhevv that it vvill be.

The *Conſequentia* or *Subſequentia*, are the effects which follow after it, and ſhew that it hath been.

Signes of an earthquake.

As for the *Antecedentia*, or ſignes, they be of theſe ſorts chiefly.

Firſt, a great tranquillitie or calmneſſe of the aire, mixed with ſome cold: the reaſon of which is, becauſe the exhalation which ſhould be blowing abroad, is within the earth.

Secondly, the ſunne is obſerved to look very dimme certain dayes before, although there be no clouds: the reaſon of which is, becauſe the wind, which ſhould have purged and diſſolved the groſſe aire, is taken priſoner and encloſed within the bowels of the earth.

Thirdly, the birds flie not, but ſit ſtill beyond their ordinary wont, and ſeem as if they were not fearfull to let any one come near them: the reaſon of which is, becauſe either the pent exhalation ſendeth ſome ſtrange alteration into the aire, which ſlenderly breatheth out of ſome inſenſible pores of the earth; which it may do though the exhalation comes not out: or elſe it is that they are ſcarce able to flie for want of ſome gentle gales for their wings to ſtrike upon; it being a thing vvell knovvn,

known that birds flie more willingly, and cheerfully, when the aire is of such a temper.

Fourthly, the weather is calm, and yet the water of the sea is troubled and rageth mightily: the reason of which is, because the great plentie of spirits or wind in the bottome of the sea beginneth to labour for passage that way, and finding none, is sent back again; whereupon soon after it shaketh the land. This is evermore a certain signe.

Fifthly, the water in the bottome of pits and deep wells is troubled, ascending and moving as if it boyled, stinking and is infected: the reason of which is, because the exhalation being pent, and striving to get forth, moveth some stinking mineralls and other poisonous stuff to the springs of those waters; and they, with the struggling exhalation stirre and attaint them.

Sixthly, there is a long thin cloud seen in a clear skie, either a little before sunne-setting, or soon after: now this is caused by reason of the calmnesse of the aire; even as *Aristotle* observeth, that in a quiet sea, the waves float to the shore, long and straight. I do not think that this alone can be any more then a very remote signe, unlesse it be joyned with some of the other signes already mentioned: for although such a cloud may be seen, yet every calm brings not an earthquake, neither are all places alike subject to them.

The last signe, and that which cannot but be infallible, is the great noise and sound which is heard under the earth, like to a groning, or very thundering. And yet some say, that this is not alwayes attended with an earthquake: for if the wind find any way large enough to get out, it shaketh not the earth. Now this noise is made by the struggling of the wind under the earth.

Next after the *Antecedentia*, the *Consequentia* of

Effects of earthquakes.

earthquakes would be considered; and these (as I said) be their effects: which indeed be not so much the effects of the earthquake, as of the exhalation causing the earthquake.

The first whereof may be the ruine of buildings, and such like things, together with the death of many people. About the 29 yeare before the birth of Christ, vvas an * earthquake in *Jurie*, whereby thirtie thousand people perished. In the fifth yeare of *Tiberius* Emperour of *Rome*, * thirteen cities of Asia were destroyed in one night by an earthquake. Some say but twelve. *Lanq. chron.* In the 66 yeare of Christ, * three cities of Asia were also, by the like accident, overthrown; namely, *Laodicea*, *Hieropolis*, and *Colossus*. Again, in the yeare of Christ 79, three * cities of *Cyprus* came to the like ruine: and in the yeare following was a great death of people at Rome. And in the yeare 114, * *Antioch* was much hurt by an earthquake: at which time, the Emperour *Trajan* being in those parts, escaped the danger very difficultly. *Eusebius* placeth it in the second yeare of the 223 Olympiad: and *Bucholcerus* setteth it in the yeare of Christ one hundred and eleven. *Eusebius* makes mention of another before this, in the 7 yeare of *Trajan*: & this was that, which in *Asia*, *Greece*, & *Calabria*, overthrew nine severall cities. About the yeare of Christ * 180, or 182, the citie *Smyrna* came to the like ruine: for the restauration whereof, the Emperour remitted ten years tribute. About the yeare of Christ 369, *Eusebius* again telleth of an earthquake, which was in a manner all over the world, to the great damage of many towns and people. The like was in the yeare 551: at which time, a quave of the earth swallowed a middle part of the citie *Misia*, with many of the inhabitants, where the voice of them that were swallowed, was heard crying for help and succour. He also, in the yeare 562, men-

* *Lanquet* in his chron.

* *Tacit. lib. 2. ann. vid. Euseb. chron.*

* *Euseb. ibid.*

* *Idem.*

* *Lanquet* in his chron.

* *Euseb.*

562, mentions another, wherewith the citie *Berintho* was overthrown; and the iſles, called *Coy*, grievouſly ſhaken. Again, he writeth of a great tempeſt and earthquake in the yeare 1456, wherein (as he hath it out of *Chronica chronicorum*) there periſhed about *Puell* and *Naples*, 40 thouſand people. Alſo, * in the yeare 1509 the citie of *Conſtantinople* was ſorely ſhaken, innumerable houſes and towers were caſt to the ground, and chiefly the palace of the great Turk; inſomuch that he was forced to fly to another place. Thirteen thouſand periſhed in this calamitie. Again, in * the yeare 1531, in the citie *Lisbon*, a thouſand foure hundred houſes were overthrown (or, as ſome ſay, one thouſand five hundred) and above ſix hundred ſo ſhaken that they were ready to fall, and their churches caſt unto the ground, lying like heaps of ſtones. This earthquake was attended with a terrible plague and peſtilence. And thus do theſe examples confirm the firſt effect.

* Fromond. Met. lib. 4. but Lanquet nameth the yeare 1508.

* Idem.

A ſecond is the turning of plain ground into mountains, and raiſing up of iſlands in the ſea, as *Thia*, in the time of *Plinie*; & *Therasia*, which (as *Seneca* witneſſeth) was made an iſland even in the ſight of the mariners, or whileſt they were looking on. Thus alſo *Delos*, *Rhodos* and ſundry others, came to be iſlands.

A third effect is the throwing down of mountains, and ſinking of iſlands, and ſuch like. Thus periſhed the Atlantick iſland, as I ſhewed before: yea thus alſo periſhed by the breach of the earth, thoſe famous cities of *Achaia*, viz. *Helice* and *Buris*: of which *Ovid* writeth thus,

Si quæras Helicen & Burin, Achaidas urbes,
Invenies ſub aquis: Et adhuc oſtendere nautæ
Inclinata ſolent cum mœnibus oppida merſis.

If thou would'ſt *Helice* and wiſh'd *Buris* find,
Th' Achæan cities, (never loſt in mind)

The water hides them: and the ſhipmen ſhow
Thoſe ruin'd towns and drown'd walls as they row.

A fourth effect is the cutting the neck of ſome *Iſthmus* from the continent: and thus *Brittain* was * ſevered from *France*; *Africa* from *Spain*; and *Sicilie* from *Italy*, with the like.

* *Veritegan* in his reſtitution, *cap.* 4.

A fifth is the tranſlation of mountains, buildings, trees, &c. unto ſome other places: of which we may find teſtimonie in good Authours of credit. *Albertus* calls this motion, a vection or a carrying.

A ſixth is the breaking out of rivers and fountains in ſome new places: which happeneth by the breaches made in the earth amongſt water-ſprings, through the violence of the Exhalation.

A ſeventh is plague and peſtilence, cauſed by the poyſonous fume of the Exhalation: ſuch as was in the yeare 1531, before mentioned, when *Liſbon* was ſo ſtrangely ſhaken: For putrid Exhalations infect the aire; and the aire, us.

An eighth effect is famine; which may be by reaſon of the ſhocks and ſhakings of the earth, making it thereby become as it were ſick and ſteril. Or elſe it may be by reaſon that the long pent vapour carries with it a blaſting hurtfull fume.

A ninth is ſometimes the diſcovering of new burning hills; which may happen when the abundance of Brimſtone and ſulphurous matter that is under ground, is ſet on fire through the violent motion of the Exhalation: and ſo it breaketh forth.

A tenth is (or elſe ſhould be) the fear of a Deitie. For if it be the Lords will by this work of his, in his handmaid nature, to ſhake it, no land can be ſure, no place ſo ſtrong that can defend us. Nay, the more ſtrong, the more dangerous: For the higher, the greater fall. With the wiſe man therefore I will ſay, *I know that whatſoever God*

God doeth, it ſhall be for ever: nothing can be put to it, nor any thing taken from it: And God doeth it, that men ſhould fear before him, Eccleſiaſtes 3. 14.

Laſt of all, this I will adde: and it is a ſaying of one, well worthie to be remembred. *The whole earth* (ſaith he) *is nothing but the centre or point of the world. This is all the matter of our glorie; this our ſeat. Here we bear honours; here we exerciſe rule; here we deſire riches; and here mankind troubleth and turmoileth himſelf: here we wage war, yea civil warre; and make the very earth become ſoft and fat with the crimſon bloud of our mutuall ſlaughters. This is that place where we drive away from us our near neighbours, ditch in his grounds to ours, and ſo meaſure our demeans by driving others from our coaſts, that thereby we may be like to him who can freely triumph in any part of the earth. But what of all this? When time, by ending us, hath put a meaſure to our covetouſneſſe; then, after all, what a ſmall portion ſhall he obtain, who is dead and gone from all?* O amatores mundi, cujus rei gratiâ militatis? *Oh ye lovers of the world, for the ſake of what thing is it that you ſtrive?*

Let any judge, whether this lower Ball
(Whoſe endleſſe greatneſſe we admire ſo all)
Seem not a point, compar'd with th'upper Sphere,
Whoſe turning turns the reſt in their career.
Lo then the guerdon of your pinching pain:
A needles point, a mote, a mite you gain:
A nit, a nothing (did you all poſſeſſe)
Or, if then nothing any thing be leſſe.
"*Why then ſhould man this nothing thus reſpect,*
"*As he, for it, Heav'ns Kingdome ſhould neglect?*
If thou feed'ſt well, if feet and back be clad,
What more to thee can Kingly riches adde?
Not houſe, not land, not heaps of gold and treaſure,
(When ſickneſſe of thy bodie hath took ſeiſure)

Can

Can thence remove it, neither canſt thou find
A force in them to cure a troubled mind.

Which if man could well remember, he would ceaſe to ſpend himſelf for nothing; and willingly ſubſcribe to the lamentation made by the * Poet, under the perſon of *Hecuba*, upon the ruine of Troy; ſaying,

* *Seneca trag.*

Quicunque regno fidit, & magnâ potens dominatur aulâ,
Animúmque rebus credulum lætis dedit,
Me videat, & te, Troja: non unquam tulit
Documenta ſors majora, quàm fragili loco
Starent ſuperbi ——.

Which is (as * one tranſlates it) thus,

* *Barkley in his Summ. bonum, edit. 2. lib. 2.*

He that his confidence puts in a Crown,
Or in his Palace potently doth frown,
And takes, with proſp'rous fortunes, all his joy;
Let him but look on me, and thee, O Troy.
Chance, by no greater influence, could declare,
In what a fickle ſtate all proud things are.

To this purpoſe alſo ſerveth that Epigram of *Auſonius*, wherein he feigneth *Diogenes* to ſee the rich King *Creſus* among the dead: and there *Diogenes* himſelf hath as good an eſtate as he.

Effigiem Rex Cræſe tuam, ditiſſime Regum,
Vidit apud manes Diogenes Cynicus.
Conſtitit: útque procul ſolito majore cachinno
Concuſſus, dixit, Quid tibi divitiæ
Nunc proſunt, Regum Rex O ditiſſime, cùm ſis
Sicut ego ſolus, me quoque pauperior?
Nam quæcunque habui, mecum fero: cùm nihil ipſe
Ex tantis tecum, Cræſe, feras opibus.

Amongſt the ghoſts Diogenes beheld
Thee Creſus, of all kings, with moſt wealth ſwell'd.
This 'twas he did conclude; and as one mov'd
With greater laughing then his wont behov'd,

He

He farre off ſaid, Thou richeſt once of kings,
Speak; (to this place below) what profit brings
All thy late pomp? for ought that I now ſpie,
We are alike; nay thou more poore then I.
For nought was what I had; I brought that ſtore:
Thou hadſt much wealth; yet now then I no more.

Like unto which, is that example of him, who lying at length upon the ground, and riſing, by chance eſpied the print that his bodie at the full length made: he breaks out into this, or the like ſpeech, ſaying, Lo here, what a ſmall piece of ground will ſerve us when we die! and yet living, we ſeek to conquer kingdomes. To which we may joyn that worthy command of famous *Saladine*, who being ready to depart this life, called for his ſtandard-bearer, giving him in charge that he ſhould go and take his winding ſheet, and hanging it on his pike, he ſhould go out with it, and tell to his camp, that of all his triumphs, of all his conqueſts, and of all his victories, he had nothing left unto him now but onely that to wrap up his bodie for his buriall.

Are all men mortall? are all born to die?
Can none on earth poſſeſſe eternitie?
Sure, he that looks upon the worlds frail ſtage,
And views the actions of this preſent age,
He cannot but with eyes indiff'rent ſee
That mortalls here would fain immortall be.
For by the ſymptomes is the ſickneſſe found;
And by the thoughts that equalize the ground,
Tranſcending rarely from that pitch, on high
Up to the court above the azure skie,
No hard thing 'tis, a judgement true to give,
That ſuch deſcendents here would ever live.
But ſouls, inſpired with the gales of grace,
Eſteem the witching world no reſting place;
A place of travell, not a place of ſtay;

Such

Such well devoted pilgrims count this way:
For ſure the world is but a gaudie ball,
Whoſe quilt is vanitie, no joy at all.
Rouze then thy mind (witcht mortall) from the ground,
Think of that place where true joyes may be found:
Choak not thy ſoul with earth: for thou doſt winne
Nought for thy care, but puniſhment of ſinne:
Rouze then (I ſay) thy thoughts; think what it is
To be partaker of eternall bliſſe.
For when the drie-land God did make appear,
'Twas not that man ſhould think his heaven's here.

Sect. 3.

Concerning the ſprouting, ſpringing, and fructification of the earth.

I Am now come to that which I called the third and laſt part of this dayes work: and it is the budding, and fructification of the earth. For after God had diſcovered it, and made it drie, he commands it to bring forth every green thing; as graſſe, herbs, trees, &c. by which he cauſed it to change a mourning, black, and ſad-ruſſet weed, into a green, gallant, rich, enameled robe; and, ladylike, to paint it ſelf in braverie; having green graſſie locks, whoſe hair doth not more adorn then profit; whoſe roſie cheeks are not more admired, then, for their virtues, wiſht: whoſe frank, free, fragrant, fruitfull breaſts do ſo nouriſh her own children, ſprung from her never-reſting wombe, that they again adde nouriſhment to other things; both man and beaſt gaining by her never-ending labours. For God, by ſaying *Let it bring forth*, did not onely give an abilitie or power of bringing forth, but brought that power alſo into act; cauſing this act to be ſo begun, that it might be continued from thence to the very end of time. And to this purpoſe we ſee it is, that

that the herb muſt bring forth ſeed, and the tree bear fruit. For God would not that either the herb ſhould be ſterill, or the tree barren; but with their ſeeds and fruits, according to their kinds: by which it was, and is, that their kinds both were, and are preſerved. For firſt we ſee the buds ſpring up; theſe at the firſt are tender, but afterwards, growing a little older, we call them herbs: the herbs, being of convenient growth, bring forth flowers: under the flowers grow and wax ripe the ſeeds: the ſeeds being ripe and caſt into the ground, do again bring forth the tender buds; and they herbs in their ſeverall kinds; and ſo on, as before: by which you may ſee, how God hath conſtituted a never-ending courſe in nature; being the ſame in the trees alſo, as well as in the herbs. For their tender branches do not grow to be woodie, but by little and little; then they aſpire to the height and name of trees; and being trees, they bloſſome; from their bloſſomes ariſe fruits; and within their fruits be ſeeds; and in thoſe ſeeds reſteth the power of other ſprouts, or tender ſhoots.

Now ſome would obſerve from hence, that here is mention made of three kind of plants and fruits that the earth bringeth forth; *viz.* the bud, the herb, and the tree: which by others are diſtinguiſhed into herbs, ſhrubs, and trees. But I rather think the bud is to be exempted, and not taken as one peculiar thing proper to a kind of its own. For (as I have already ſhewed) that which is the bud, may be taken, either for the tender ſhoot of any herb or graſſe, or elſe for the tender and unwoodie branches of ſhrubs and trees: for that which they be in their ſprouting, they are not in their perfection: neither are they in their perfection what they be in ſprouting.

The varietie and virtue of herbs and trees.

And is it not an endleſſe wonder to ſee the varietie, growth, power and virtue of theſe, the earths rich liveries? ſome great, ſome leſſe; ſome little, ſome low; ſome large,

large, ſome long; ſome, whoſe virtue excells in this; ſome, whoſe power appears in that: ſome hot and moiſt; ſome cold and drie: ſome hot and drie; ſome cold and moiſt. Of all which I purpoſe to give my reader a taſte, that thereby he may be driven to admire the reſt.

Herbs hot and moiſt.

Baſil.

AND firſt of all I begin with *Baſil*: in Greek it is ὄκιμον, or βασιλικὸν, in Latine, *Ocimum*, *Baſilicum*, or *Regium*. This is an herb hot in the ſecond degree, and ſomewhat moiſt.* *Galen* would not that this herb ſhould be taken inwardly, becauſe it hath a kind of ſuperfluous moiſture joyned to it; but being applied outwardly, it is good to digeſt, diſtribute, or concoct. We in England ſeldome or never eat it: yet we greatly eſteem it, becauſe it ſmelleth ſweet, and (as ſome think) comforteth the brain. But know that weak brains are rather hurt then holpen by it; for the ſavour is ſtrong: and therefore much ſmelled unto, it procureth the headach: and (as the Authour of the haven of health affirmeth out of *Hollerius*) *Baſil* hath a ſtrong propertie beyond all theſe. For (ſaith he) a certain Italian, by often ſmelling to *Baſil*, had a ſcorpion bred in his brain, and after vehement and long pain he died thereof. Moreover, that we ſhunne the eating of it, is alſo neceſſary; becauſe, if it be chewed, and laid afterwards into the ſunne, it engendreth worms. Mr *Thomas Hill*, in his art of gardening, teſtifieth that the ſeeds of *Baſil*, put up into the noſe, procure ſneezing; and being mixed with ſhoemakers black, do take away warts, killing them to the very roots.

Ger. in his Herb. out of Galen Simp. lib. 8.

A ſcorpion bred in the brain by the ſmell of *Baſil.*

A medicine for warts.

Mallows.

The wild *Mallow* is called in Greek ἄλθεα, ſignifying *a mitigatour of pain*: & in Latine, it is *Malva ſylveſtris*. It hath a certain moderate and middle heat in it, together with ſome moiſture. The leaves ſtamped with a little hony, and one anointed with them ſhall not be ſtung by bees, waſps, or the like.

How to keep bees from ſtinging.

Borage

Borage is a common herb, and yet ſome account a fourefold difference in it; as thus, *Garden Borage*, *white-flowred Borage*, *never-dying Borage* (ſo called, becauſe fair blew flowers, ripe ſeeds, and buds for new flowers, may be ſeen all at once on it) and alſo another kind of *Borage*, which is little differing from the former, excepting that the flowers look fair and red. This herb is hot and moiſt in the firſt degree. *Borage.*

Unto this may be joyned *Bugloſſe*, which, according to *Dioſcorides* (as Mr *Gerard* writeth) is the true *Borage*: whereupon, * ſaith he, many are of an opinion that the one is but a degenerate kind from the other. In the Greek it is called βόγλωσσον; and in the Latine, *Lingua bubula*. *Plinie* giveth a reaſon of this name; which is, becauſe it is like an oxes tongue. Moreover, he likewiſe calleth it *Euphroſynum*, from the effect; namely, becauſe it maketh a man merry and joyfull: For εὐφροσύνη is *Lætitia*; and εὐφρόσυνον ſignifieth ſome ſuch thing as doth *lætitiam adferre*, or bring mirth: which he witneſſeth of this herb to be true, ſaying that being put into wine it increaſeth the delights of the mind. *Plin. lib.* 25. *cap.* 8. *Bugloſſe.*

* *Hob.* pag 654.

Good to make one merrie.

The like is alſo ſaid of *Borage*; *Ego Borago gaudia ſemper ago*. In which regard the diſtilled water of *Borage* or *Bugloſſe*, with the leaves and flowers, being drunk with wine, cannot but be good, comfortable, and pleaſant for the brain and heart: it increaſeth wit and memorie, engendreth good bloud, and putteth away melancholy and madneſſe, as the authour of the haven of health affirmeth.

An excellent water made of Borage, &c. being good againſt melancholy and ſadneſſe.

The herbs following are hot and dry.

NExt unto *Bugloſſe*, I mention *Balm* or *Baum*, becauſe the water of it alſo being drunk in wine, is good to comfort the heart, to drive away all melancholy and ſadneſſe: in which regard it is not amiſſe to have them all *Balm.*

Bees take great delight in Balm.

all diſtilled together. Moreover I find it recorded that the hives of bees being rubbed with the leaves of this herb, cauſeth the bees to keep well together, and allureth others to come unto them: For, ſaith *Plinie*, they delight in no herb or flower more; and therefore they fly not away from ſuch hives as are either rubbed with the leaves, or anointed with the juice of this herb: and hereupon it cometh to be called *Apiaſtrum*; which is as much as to ſay, *The bees ſtarre*, or *guide*. For when they are ſtrayed farre from home, by the help of this herb they find their way again. But the common Latine name is *Meliſſa*, or *Citrago*. It is alſo called in ſome Authours, *Meliſſophyllum*, and *Meliphyllon*.

*Lib. 21. cap. 20.

A medicine for the Mother.

This is an herb which is hot and dry in the ſecond degree; and good to be either eaten, or ſmelled unto by them who are ſubject to the Mother. *Gerard.*

Balm is good to cloſe up wounds

Plinie writeth a ſtrange ſecret in a kind of *Balm*, which he calleth *Iron-wort*; *viz.* that the leaves cloſe up wounds without any perill of inflammation: and alſo that it is of ſo great virtue (which you may believe as you liſt) that though it be but tied to his ſword which gave the wound, it ſtancheth the bloud.

Sage.

Sage, called in Greek ἡλελίσφακος, is *Salvia* in the Latine: and amongſt the many kinds which ſome obſerve, there are principally two; the greater, and the leſſer. Some ſay it is hot and dry in the third degree: ſome name not the third ſo much, as the end of the ſecond: others determine that it is hot in the firſt degree, and dry in the ſecond.

This is an herb which hath many and ſingular properties; inſomuch that the Salern ſchool makes this demand.

Cur moriatur homo cui Salvia creſcit in horto?

As if it ſhould be ſaid, ſuch is the virtue of *Sage*, that if

if it were poſſible it would cauſe *Clotho* evermore to hold the diſtaffe, and *Lacheſis* to ſpin perpetually: yea, *Atropos* muſt forbear to cut in two the thread of life: ſuch a deſire hath *Sage* to make a man immortall.

The Latine and Engliſh names ſpeak greatly for the commendation of it. For *Salvia* takes the name of ſafety; and *Sage* is a name of wiſdome.

Sith then the name betokens wiſe and ſaving,
We count it natures friend, and worth the having.

Beſide theſe names, ſome call it the *Holy herb*, becauſe women with child, if they be like to come before their time, and are troubled with abortments, do eat thereof to their great good: For it maketh them fruitfull, retaineth the birth, and giveth life unto it. *Ger.* in his Herball. Sage is good for child-bearing women.

Moreover, *Sage* is ſingular good for the brain and head, quickeneth the memorie and ſenſes, ſtrengtheneth the ſinews, is good againſt the palſie, and ſtayeth a ſhaking in any part of the body. The moſt of which properties are expreſſed in theſe two verſes following, Good for the brain. Good againſt the palſie.

Salvia confortat nervos, manuúmque tremorem
Tollit, & ejus ope febris acuta fugit.

Sage makes the ſinews ſtrong, the palſie cures;
And by its help no ague long endures.

Alſo, the juice of this herb drunk with honie, is good for thoſe that ſpit and vomit blood: for it ſtoppeth the flux thereof incontinently. Good againſt ſpitting of blood.

And laſt of all, although I omit many virtues in this herb, yet one thing muſt not be forgotten. The leaves of the red *Sage* put into a wooden diſh, wherein are put very quick coals with ſome aſhes in the bottome of the diſh to keep the ſame from burning, and a little vineger ſprinkled upon the leaves lying upon the coals, and ſo wrapped in a linnen cloth, and holden very hot unto the ſide of thoſe that are troubled with a grievous ſtitch, Good againſt a ſtich in the ſide.

they take away the pain preſently, and alſo greatly help the extremitie of a pluriſie. *Ger.*

Rue.

Rue, or *Herb-grace*, in Latine is called *Ruta*, in Greek πήγανον; which is, *quòd caliditate ſuâ πήγνυσι τὸ σπέρμα, ſemen quaſi congelat.* If it be wild *Rue*, and not ſuch as groweth in gardens, then it is hot and dry in the fourth degree: but garden *Rue* is a degree cooler and moiſter. *Plinie* writeth that there is ſuch friendſhip between it and the fig-tree, that it proſpereth no where ſo well as under that tree; delighting alſo (as he affirmeth) to grow in ſunnie places. It is an enemie to the Toad, as being a great enemie to poyſon: And excellent is that medicine approved by *Mithridates*, King of *Pontus* in *Aſia*, who lived in the dayes of *Pompey*, *viz.* that if any do eat faſting two drie wall-nuts, as many figs, and twentie leaves of *Rue*, with one grain of ſalt, nothing which is venimous may that day hurt him; it being alſo an excellent preſervative againſt the peſtilence. Which alſo the Salern ſchool teacheth, in theſe words.

*Lib. 19. cap. 8.

An antipathy between the Toad and Rue.

Good againſt poyſon.

Allia, Ruta, Pyra, & Raphanus, cum Theriaca, Nux,
Præſtant antidotum contra lethale venenum.

Garlick, Rue, Pears, and Radiſhes will make,
With Triacle and Nut,
An antidote, which will fell poyſon ſlake,
And doore of danger ſhut.

Moreover, *Schola Salerni* ſetteth down ſome other properties of it: thus;

Ruta comeſta recens, oculos caligine purgat;
Ruta viris coitum minuit, mulieribus auget.

Upon which occaſion one once gave it this commendation.

Rue is a noble herb, to give it right:
For, chew it faſting, it will purge the ſight.
One qualitie thereof yet blame I muſt:
It makes men chaſte, and women fils with luſt.

Good for the ſight.

Rue makes men chaſte, but not women.

Which

Which laſt propertie is cauſed, in regard that the nature of women is wateriſh and cold: now *Rue* (we know) heateth and drieth; whereupon it ſtirreth them the more to carnall luſt: but it diminiſheth the nature of men, which is of temperature like to the air, *viz.* hot and moiſt; working thereupon a contrary effect from that which it doth in women.

A precious water for the eyes.

Alſo, for thoſe who are feeble in their ſight, let them diſtill Rue and white roſes together, and putting the water thereof into their eyes, it will open their windows and let in more light. To which joyn alſo this other experiment, taken out of *Schola Salerni*;

Feniculus, Verbena, Roſa, & Chelidonia, Ruta,
Ex iſtis fit aqua quæ lumina reddit acuta.
Fennell, Vervine, Roſe, Celandine and Rue,
Do water make which will the ſight renew.

What other properties are pertinent to it, may be ſeen at large in *Pline, lib. 19. cap. 8. & lib. 20. cap. 13.* As alſo in *Gerard*, and ſuch others as have ſet forth herballs.

A note for garden-weeders.

I will adde therefore but one thing more; namely that the weeding of this herb with bare hands whileſt the dew hangeth on the leaves, doth cauſe dangerous bliſters and ſores; which may again be helped with ſallet oyl or the juice of hemlock, as Mr *Thomas Hill* in his art of gardening hath declared.

Dill.

Dill is called in Greek ἄνηθον, in Latine *Anethum* and *Anetum*; and in Engliſh ſometimes *Anet* as well as *Dill*. It bringeth forth flowers and ſeeds in Auguſt; and, as ſome write, it is hot and drie in the ſecond degree: but *Gerard* out of *Galen* affirmeth, that it is hot in the end of the ſecond degree, and drie in the beginning of the ſame, or in the end of the firſt degree. The decoction of the tops of this herb dried, together with the ſeed being drunk, provoketh urine, allayeth gripings, hickets, and windineſſe; engendreth milk in nurſes breaſts,

Dill is good to expell wind, provoke urine, engender milk in nurſes breaſts.

with ſuch like other ſecrets. And of the green herb it is ſaid, that it procureth ſleep, ſound and ſecure; according to which we have an old ſaying, that

Whoſoever weareth Vervin or Dill,
May be bold to ſleep on every hill.

An old cuſtome. And from hence haply it was, that garlands made of this herb were uſed to be worn at riotous feaſts, that thereby they might not onely ſleep, but ſleep without danger.

Roſemarie. *Roſemarie*, which ſome call the garland roſe, or in Latine *Roſmarinus coronaria*, becauſe, in times paſt, women have been accuſtomed to make garlands, or crowns of it, is an herb which is hot and drie in the ſecond degree, and of an aſtringent or binding qualitie. The Greeks call it λιβανωτις, from λίβανος, *Thus*, or *arbor thurifera*; and ſo alſo * *Plinie* nameth it, becauſe it hath a root like to the frankincenſe tree; or becauſe the flowers ſmell much like to turpentine, or frankincenſe: which flowers, if they be diſtilled, and if a few cloves, mace, cinamon, and a little anniſeed be ſteeped in their water for a few dayes together, and drunk at morning and evening firſt and laſt, it taketh away the ſtench of the mouth and breath, and maketh it very ſweet, quickening the ſenſes and memorie, ſtrengtheneth the ſinewie parts, and is beſt for thoſe who have a cold moiſt brain. The ſame wine that *Roſemary* and the flowers have been ſodden in, is good to waſh the face and hands that they may look fair and clear.

* *Lib. 19. cap. ult.*

Good againſt a ſtinking breath.

To make the face fair.

Alſo the conſerve of *Roſemarie* flowers, taken every morning faſting is good againſt tremblings, faintings, palſies, &c. helping thoſe who have a trembling at the heart, or are troubled with a dumbe palſie, or are ſubject to vomit up their meat. And for dull melancholy men, take the * flowers and make them into powder, bind them to the right arm in a linen cloth, and this powder

To prevent the palſie, and ſtrengthen the ſtomach.
To cure melancholy.
*Note alſo that the flowers boiled in Goats milk, are good for the Ptiſſick. You muſt keep covered, and drink it cold.

(by

(by working upon the veins) ſhall make a man more merrie and lightſome then ordinary. Take alſo the rinde of the *Roſemarie* and make powder thereof, then drink it in a little wine, and it helpeth you of the poſe or ſtuffing in the head, if it proceed from the coldneſſe of your brain. Alſo the wood of the ſtalk burnt to coals, and made into powder, and put into a linen cloth, is excellent to rubbe the teeth that they may look white, and to kill the worms in them if there be any, or to keep them from breeding if there be none. Theſe, and ſundry other, are the properties of *Roſemarie*.

To cure a ſtuffing in the head.

To ſcoure the teeth, and kill the worms in them.

I could wiſh that there were a greater plentie of this herb in *England* then there is. *France* hath great ſtore; inſomuch that at *Provence* it is uſed for a common fuell, the unlaboured grounds do ſo abound with it.

Of *Aconite* or *Wolf-bane* there be many kinds; and the forces of them all are extreamly pernicious and poiſonſome: for it is reported that if either man or beaſt be wounded with an arrow, knife, ſword, or any other inſtrument dipped in the juice of this herb, they die incurably within half an houre after.

Wolf-bane. An incurable poiſon.

And know that it is called *Wolf-bane*, becauſe men hunting for wolves, uſed to poiſon pieces of ravv fleſh with the juice of this herb, and lay them as baits, on which the wolves eating, die preſently.

It hath a root like a ſcorpion, ſhining within like alabaſter. Poets feigne (becauſe it is ſuch a venimous herb) that *Cerberus*, the three-headed dog of hell, being dragged up in a chain of Adamant by *Hercules*, did caſt ſome of his venime upon it, whereby it became ſo venimous,

Yet nevertheleſſe, as great and deadly a poiſoner as it is, the juice of it cures the burning bite of ſtinging ſerpents, if it be taken and applied to the place grieved. Whereupon *Du Bartas* calleth it

A ſtrange propertie in a poiſoning herb.

A valiant venime, and courageous plant,

Diſdainfull poiſon, noble combatant,
That ſcorneth aid, and loves alone to fight,
That none partake the glorie of his might.
For if he find our bodies 'fore-poſſeſt
With other poiſon, then he lets us reſt,
And with his rivall entreth ſecret ſtrife,
By both whoſe deaths man keeps his wiſhed life.

Flea-bane. *Mullet*, or *Flea-bane*, in Greek κονζα, in Latine *Conyza*, is hot and drie in the third degree.

Good to drive away gnats and fleas, &c.

This herb burned, and ſmoked where flies, gnats, fleas, or any venimous things are, doth drive them away.

Ladies mantle. *Ladies mantle*, or great *Sanicle*, is an herb of a drying nature. It is good to keep down maidens paps or dugs; and when they be great and flaggie, it maketh them leſſer and harder. *Ger. Herb. pag.* 803.

An herb for maids.

Butterwort. *Butterwort* is a kind of *Sanicle*; and it is hot and drie in the third degree. It is reported that when ſheep eat of this herb (which is but when the want of other meat compells them) they then catch a rot.

How ſheep may catch a rot.

Yet nevertheleſſe, if it be bruiſed, the juice makes a good ointment for the dugs of cattel or kine, when they be either bitten by any venimous worm, chapped, rifted or hurt by other means. It is requiſite that farmers and husbandmens wives ſhould be well acquainted with this herb; as alſo that ſhepherds ſhould know what ground aboundeth with it, that thereby they may prevent a miſchief in their flock.

An excellent herb for farmers.

Horehound *Horehound*, called in Greek πρασιον, in Latine *Marrubium*, is an herb hot in the ſecond degree, and drie in the third.

A cure for a cough of the lungs.

The ſyrupe of this herb doth wonderfully and above credit eaſe ſuch as have lien ſick very long of a cough or conſumption of the lungs: the like doth *Saffron*, bringing breath again, when one is even at deaths doore, if ten or twentie grains at the moſt (for too much is hurtfull) be

Saffron.

given

given in new or ſweet wine. *Saffron* is hot in the ſecond degree, and dry in the firſt. And of it thus vvriteth the Salern * ſchool,

Take Saffron, if your heart make glad you will;
But not too much, for that the heart may kill.

* Tranſ. by Sir John Harington.

Hyſſop, in Greek ὕσσωπος, and in Latine *Hyſſopus*, is an herb hot and dry in the third degree; whoſe chief virtues are briefly comprehended in theſe few verſes of *Schola Salerni*. *Hyſſop.*

Hyſſopúſque herba eſt, purgans è pectore phlegma:
Ad pulmonis opus cum melle coquenda jugata.
Vultibus eximium fertur præſtare colorem.

Hyſſop purgeth the breaſt, and puts a good colour in the face.

The Hyſſop is an herb to purge and cleanſe
Raw flegmes and hurtfull humours from the breaſt:
The ſame unto the lungs great comfort lends,
With hony boild: but farre above the reſt,
It gives good colour, and complexion mends,
And is therefore with women in requeſt.

Mr. *Gerard* ſetteth down the virtues of it thus;

1. A decoction of *Hyſſop* made with figs, and gargled in the mouth and throat, ripeneth and breaketh the tumours and impoſtumes of the mouth and throat, and alſo eaſeth the difficultie of ſwallowing, coming by cold rheums. Good for the throat.

2. The ſame made with figs, hony, water, and rue, and drunk, helpeth the inflammation of the lungs, the old cough, ſhortneſſe of breath, and the obſtructions or ſtoppings of the breaſt. Good for the lungs and breath

3. The ſyrupe or juice taken with the ſyrupe of vineger, purgeth tough and clammie flegme by ſtool, and driveth forth worms, if it be eaten with figs. Good againſt worms.

4. And the water (ſaith he) is alſo good for the forenamed diſeaſes; but nothing ſo ſpeedie and forcible.

Water-Creſſes, which the Latines call *Naſturtium aquaticum*, or *Siſymbrium aquaticum*, & the Greeks νᾶπυ, are *Water-Creſſes.*

Good againſt the green ſickneſſe.

are of nature hot and drie. They help maidens of the green ſickneſſe, and ſend their accuſtomed lively colour again into their faces, if they take them thus, *viz.* chop them and boyl them in the broth of fleſh, and uſe to eat ſuch broth for a moneth together at morning, noon, and night.

Good againſt the ſtone.

Alſo being taken in the ſame manner they provoke urine, vvaſte the ſtone and drive it out. *Ger. pag.* 201.

Sothernwood.

Sothernwood; in Greek ἀβρότονον, which name it alſo retaineth in the Latine, is hot and dry in the end of the third degree.

Good to make the beard grow.

It is ſaid that the aſhes of burnt *Sothernwood* brought to a powder, & tempered with the oyl of radiſh or ſome other thin oyl, cure the pilling of the hair from the head, and cauſe the beard to grow quickly. The ſame doth alſo the juice of this herb mixed with the oyl of *Dill.*

A ſtrange ſecret.

Plinie writeth (which you may believe as you liſt) that a branch of this herb laid under the pillow of the bed, doth greatly move a deſire to the venereall act; & is of force againſt all charms that have been to hinder it. *Plin. lib.* 21. *cap.* 21.

One Berrie.

Good againſt peeviſhneſſe.

There is an herb called *Herba Paris*, *One Berrie*, or *Herb-Truelove*; ſo called becauſe at the top of the ſtalk it beareth foure leaves like unto a true-lovers knot. This herb is good for ſuch as are peeviſh and childiſhly fooliſh for they know not what; let them drink half a ſpoonfull of the powder, or of the berries at morn & even. *Ger.*

Dittanie.

Dittanie, called of the Greeks δίκταμνος, and in Latine *Dictamnum*, is an herb hot and dry. There are two kinds of it; *Dittanie* of *Crete*, and *Baſtard Dittanie.*

* *Lib.* 25. *cap.* 1.

An herb for the wounded Deere.

That which is the true *Dittanie*, is of wonderfull operation. * *Plinie* ſaith that it groweth onely in *Crete* or *Candie*; and is beneficiall to the wounded Deere: For the wild Goats and Deere in *Candie*, when they be wounded with arrows or darts, do ſhake them out

out by eating of this herb; and it alſo healeth their wounds.

The *Baſtard Dittanie* hath virtues ſomevvhat like to the firſt, but not of ſuch great force. And of the firſt *Du Bartas* vvriteth thus,

But I ſuppoſe not that the earth doth yield
In hill or dale, in forreſt or in field,
A rarer plant then Candian Dittanie,
Which wounded Deere eating, immediately
Not onely cure their wounds exceeding well,
But 'gainſt the ſhooter do the ſhaft repell.

Cummin, in the Greek κύμινον, and in Latine *Cuminum*, is hot and dry in the third degree. *Cummin.*

The ſeeds of this herb ſodden in vvater, if the face be vvaſhed vvith the ſame, do cauſe it to be clear and fair: yet uſe it not too often; for then it breedeth paleneſſe: it is good therefore for ſuch as be high-coloured, or have too much bloud in their cheeks. To make the face fair.

Moreover, chew this ſeed in your mouth after the eating of onions, garlick, or leeks, and it taketh away their ſmell.

Alſo, it ſtoppeth a bleeding at the noſe, being tempered with vineger and ſmelt unto. For bleeding at the noſe.

Mint is in Greek ἡδύοσμος; from ἡδὺς *Sweet*, and from ὀσμὴ *Smell*: and this, ſaith * *Plinie*, is the reaſon why it is not rather called μινθή. Moreover, as he alſo affirmeth, the ſmell of it ſtirreth up the mind, and muſt therefore be good for ſtudents; good alſo againſt the biting of Scorpions. *Mint.*

* Lib. 19. cap. 8. & lib. 20. cap. 14.

Good for ſtudents.

But let the good huſwife never uſe to rub her milk-bowls with *Mints*: For *Mints* put into milk will not ſuffer the milk to curd, although the runnet or running (as they call it) be put unto it. This herb is hot and dry in the third degree; and, as *Schola Salerni* witneſſeth, is good againſt worms. A note for good huſwives.

Good to kill worms.

The

The worms that gnaw the wombe and never stint,
Are killed, purg'd, and driv'n away by Mint.

Mustard.

Mustard, or *Senvie* called in Greek by some νάπι, by others σίνηπι, and in Latine *Sinapi* or *Sinapium*, is hot and dry in the fourth degree, and is marvellous good against a voice that's hoarse: wherefore if any be given to musick, and would fain have a clear voice to sing, let him make mustard seeds into powder, and work the same with hony into little balls, of the which let him swallow one or two down every morning fasting, and in short time his voice will be clear.

To make one sing clear.

Moreover, *Mustard* hath another good propertie, which must not be forgotten; and this it is,

**She that hath hap a husband bad to bury,*
And is therefore in heart not sad, but merry,
Yet if in shew good manners she would keep,
Onyons and Mustard seed will make her weep.

*Sr John Harington's trans. of *Schola Salerni.* How a woman may save her credit.

Peniryall.

Peniryall, or *pudding-grasse*, in Greek γλήχων: and in Latine *Pulegium*, or *Pulegium regale* (for difference between it and wild *Thyme*, which some call *Pulegium montanũ*) is an herb hot and dry in the third degree, and good for such as are daily moved to sleep: For let them but take the fresh *Peniryall* and hold it in their mouth, under their tongue; and by often applying the fresh herb, they shall drive away the desire of sleep.

Good against drowsinesse.

Moreover, according to *Schola Salerni*,

Let them that unto choler much incline,
Drink Peniryall steeped in their wine:
And some affirm that they have found by triall,
That Gouts great pain is eas'd by Peniryall.

Good against choler and the gout.

Brionie.

Brionie, or the *White vine*, as it is commonly called, is of two kinds: the one white, the other black; besides the wild one, which is *Brionia sylvestris*. This plant is called in Greek ἄμπελος λευκὴ, in Latine *Vitis alba*: but according to *Plinie*, it is *Brionia*, or *Madon*.

White

White *Brionie* is in all parts hot and drie, exceeding the third degree.

It ſcoureth the skin, taketh away wrinckles, freckles, ſunne-burning, black marks, ſpots, and ſcarres of the face, if the juice be tempered with the meal of vetches, or tares, or of fenugreek: or boiled in oyl till it be conſumed, it taketh away black and blew ſpots which come of ſtripes.

Good againſt ſcarres, ſpots, freckles, &c.

And, as *Galen* affirmeth, it is a plant profitable for tanners, to thicken their leather hides with. *Ger. ex Galen.*

An herb for tanners.

Madwort.

Madwort, or *Moon-wort*, in Greek ἄλυσσον, in Latine *Alyſſum*, or *Lunaria*, is an herb of a temperature meanly drie, & very like to *Horehound*, but rougher and more full of prickles about the flowers; the colour of which flowers are tending to blew: the leaves are ſmall and faſhioned ſomething like an heart, with a crooked line along the ſame, divers tufts depending on a long tail, on both ſides: ſomewhat long, flat, and divided on the one ſide by crooked ſlittings, which ſeem to be round holes; the entry whereof is raiſed both on the one part, and on the other. The ſtalks thereof are made with hollow angles, garniſhed with groſſe branches; and the grain in the cod, is made like a creſcent with two horns; from whence it is called *Moon-wort*, or *Lunaria*. Thus I find it deſcribed: and note alſo that the root is ſlender, and about ſome foure fingers long.

This is an herb of a ſtrange propertie. For it is an herb that unſhoeth horſes, and the like.

I meet ſometimes with many ſtrange reports concerning this herb: and who more highly eſteem it then the Alchymiſts? becauſe it ſeemeth to be a thing very proper to them, and peculiar for their uſe in making of ſilver. The Italians call it, *Unſhoe-the-horſe*; becauſe, if they tread upon it, they loſe their ſhoes, and are freed from their locks and fetters.

Oh Moon-wort tell us where thou hidd'ſt the ſmith,
Hammer and pincers thou unſhoo'ſt them with.
Alas!

Du Bart.

Alas! what lock or iron engine is't
That can thy ſubtil ſecret ſtrength reſiſt,
Sith the beſt Farrier cannot ſet a ſhoe
So ſure, but thou with ſpeed canſt it undo?

Theſe ſecrets are ſtrange, and ſomewhat are they ſtrengthened by that which *Plinie* writeth of the woodpecker, who, by the means of a certain herb, draweth the wedges out of the holes in trees, which ſhepherds have driven in: yea nails, or any other ſuch like wedges, are fetched out by the virtue of this herb. Thus *Plinie* relateth, and he alledgeth one *Trebius* for his witneſſe. See *Plin. lib.* 10. *cap.* 18.

Mr *Gerard* ſaith that it is ſowen now and then in gardens, eſpecially for the rareneſſe of it; but the ſeed (ſaith he) is brought over either from Spain or Italie. But why may it not grow in other places? I remember what a friend of mine, of good credit, once told me, that his grandfather had a cloſe, wherein it was a common thing to find their horſes unfettered in the morning, although they were faſt ſhackled over night: he named alſo the place; but I have now forgotten it. Here do I ſuppoſe might grow ſome of this herb, if there be any ſuch to work theſe feats.

Good againſt the biting of a mad dog.

But to omit theſe ſtrange narrations, let me acquaint you with that excellent propertie which *Galen* mentioneth; namely that if it be given to ſuch as are enraged by the biting of a mad dog, it doth perfectly cure them. *Ger. Herb. pag.* 380. It is therefore alſo called *Madwort.*

Perſley.

Parſley is an herb hot and drie; hot in the ſecond degree, and drie almoſt in the third. There be many kinds of *Parſley*; and every one of them, according to the Greek, are called σέλινον, and in Latine, *Apium*, *Petrapium*, and the like. But know that there is *Apium hortenſe*, *garden Parſley*; and *Apium paluſtre*, *water Parſley* (which is *Smallage*) and *Apium montanum*, *mountain Parſley*;

Parſley; and *Petrapium*, or *Petroſelinum Macedonicum*: which we in *England* call *ſtone Parſley*. Moreover, ſome ſay that *Aliſanders* are called the *great Parſley*: and again, there is *Apium ſylveſtre*, *wild Parſley*.

How ſick Harts cure themſelves

Elianus reporteth, in the 13 book of his variable hiſtorie, that when the Harts ſtand in need of a remedie againſt any dangerous diſeaſe, they then uſe to eat wild *Parſley*.

Thyme.

There be generally two ſorts of *Thyme*; the *wild* and the *garden Thyme*; and both are hot and drie in the third degree.

The wild is called in Greek θρύμ, in Latine *Serpillum*, *à ſerpendo*, from creeping: for ſo it grows, and creeps upon the ground from place to place.

The garden *Thyme* is called *Thymum durius*, and in Greek θύμ, which is a generall name for all kind of *Thyme*.

Good againſt the falling ſickneſſe, and troubled minds.

Bees are greatly delighted with this herb: and for ſuch as are ſubject to the falling ſickneſſe, let them uſe to ſmell unto it. Alſo, it being made into powder, is good for ſuch as be fearfull, melancholy, and troubled in mind, if it be taken in Mead, or a honied vineger which is called *Oximel. Ger.*

Water Pepper.

Arſmart, or *water Pepper* groweth almoſt in every wateriſh plaſh, or near unto the brims of rivers, ditches, and running brooks. In Greek it is ὑδροπίπερις, in Latine *Hydropiper* or *Piper aquaticum*. It is hot and drie of temper.

An herb which will help the tiring of a jade.

The leaves of this herb rubbed upon a tired jades back, and a good handfull or two laid under the ſaddle, doth wonderfully refreſh the wearied horſe, and cauſeth him to travell much the better: and note that this is to be done as ſoon as he beginneth to tire.

Peionie.

Peionie, in Greek παιονία, in Latine *Paonia*, and *Dulcifida*, is an herb meanly hot and drie.

The

A medicine for the Mare, melancholy dreams, falling ſickneſſe, &c.

The black grains or ſeeds of the male *Peionie* bruiſed, and given to drink in mead or wine helpe melancholy dreams, cure the diſeaſe called *Ephialtes*, or *Nightmare*. A ſyrupe made of the flowers doth greatly help the falling ſickneſſe. And, as *Galen* hath found by ſure and evident experience, (ſaith Mr *Gerard*) the freſh root tied about the necks of children, doth the like cure: but unto thoſe that are grown, the ſaid root muſt be adminiſtred in ſome ſyrupe or decoction, and taken invvardly, er elſe it helpeth not.

Spear-wort.

Spear-wort or *Bane-wort*, is an herb which if it be taken inwardly, is deadly. It groweth by ditches and river ſides, and wateriſh places.

An herb which beggars uſe to bliſter their arms and legs withall.

Cunning beggars do uſe to ſtamp the leaves of this herb and lay them to their legs and arms, which cauſe ſuch filthie ulcers as we daily ſee among ſuch wicked vagabonds (for they will raiſe blains and bliſters) and by this practice they hope to move the people to the more pitie. But let not the abuſe extirpate the right uſe: for the learned affirm that it prevaileth much towards the drawing of a plague-ſore from the heart and inward parts. In Greek it is called πλατύφυλλος, and in Latine *Ranunculus longifolius*. Moreover, it hath alſo the name of *Bane-wort*, becauſe when ſheep feed on it, they have their livers enflamed, their guts and entrails fretted and bliſtered by it. It is hot and drie in the fourth degree.

Sulphur-wort.

Sulphur-wort or *Hogs fennell*, in Greek is πευκέδανος, in Latine *Peucedanus*, or *Feniculum porcinum*. It is hot in the ſecond, and drie in the beginning of the third degree; & is uſed with good ſucceſſe againſt the ruptures & burſtnings of young children; being very good to be applied to their navels, if they ſtart out over much.

Good for young children.

Feverfew.

Feverfew, called in Greek παρθένιον, or elſe ἀμάρακος, and in Latine *Parthenium*, is hot in the third degree, and drie in the ſecond.

This

This herb dried and made into powder, is good againſt a ſwimming and turning in the head, if ſome two drammes of it be taken with hony or ſweet wine. Good againſt a *Vertigo.*

Alſo it is good for ſuch as be melancholie, ſad, penſive, and not deſiring to ſpeak. Good to drive away ſadneſſe.

Mouſeare, or *Piloſella*, is hot and dry. The decoction or the juice of this herb is of ſuch excellencie, that if ſteel-edged tools glowing hot be often cooled therein, it maketh them ſo hard that they will cut ſtone or iron, be it never ſo hard, without turning the edge or waxing dull. *Mouſeare.* Good to harden edge tools.

Celandine, or *Swallow-wort*, in Greek is χελιδόνιον, in Latine *Chelidonium.* This herb is hot & dry in the third degree. Some ſay that it was thus named becauſe (as * *Plinie* writeth) it ſpringeth at the coming of the ſwallows, and withereth at their departure: which, I ſuppoſe, is falſe, ſeeing it may be found all the yeare. That therefore which he writeth in his 8 book, the 27 chapter, did rather occaſion the name: For (ſaith he) the ſwallows have demonſtrated unto us, that *Celandine* is good for the ſight, becauſe when the eyes of their young ones be out, they cure them again with this herb. Whereupon one writes out of *Schola Salerni*, thus, *Celandine,*

* *Lib.* 25. *cap.* 8.

An herb there is takes of the Swallows name,
And by the Swallows gets no little fame;
For Plinie writes (though ſome thereof make doubt)
It helps young Swallows eyes when they are out.

Alſo, the root being chewed is reported to be good for the tooth-ach. Good for the tooth-ach.

Angelica is hot and dry in the third degree. It is an enemie to poyſons, and cureth peſtilent diſeaſes, if it be uſed in time: yea the very root chewed in the mouth is good againſt infection. *Angelica.*

Contagious aire, ingendring peſtilence, Du Bart.
Infects not thoſe who in their mouthes have tane
Angelica, that happie counter-bane. Dra-

Dragon. Ill for women with child.

Dragon is an herb much like to *Angelica* in operation, if the diſtilled water be drunk: onely obſerve that the ſmell of *Dragon* flowers are hurtfull to women newly conceived with child. *Ger.*

Sowbread.

Sowbread, or *Swines-bread*, is an herb hot and drie in the third degree. In Greek it is κυκλάμινος, and in Latine *Tuber terræ.*

A dangerous herb for women with child.

This herb is alſo dangerous for women with child either to touch, take, come near, or ſtride over it: For, without controverſie (as Mr *Gerard* affirmeth) it maketh them be delivered before their times. He therefore, having it growing in his garden, uſed to ſet ſticks or barres, that ſuch a danger might be ſhunned. And this effect he attributeth to the extraordinarie naturall attractive vertue in it. *Dioſcorides* and *Matthiolus* do not deny the ſaid marvellous operation: and *Du Bartas* remembers it thus,

If over it a child-great woman ſtride,
Inſtant abortion often doth betide.

Lavender.

Lavender (as is ſuppoſed) is but the female plant of that which we call *Spike*: and being ſweet in ſmell, it is uſed in baths and waters to waſh the hands: in which regard it is called *Lavender* or *Lavander*, from the Latine word *Lavo, to waſh.*

Leeks.

Leek is hot and dry: the Greeks call it πράσον, the Latines *Porrum*; according to which name, *Nero* the Emperour was called. For, becauſe he took great pleaſure in this root, he was named in ſcorn, and called *Porrophagus.*

The diſcommeditie of Leeks.

Leeks are not good for hot and cholerick bodies; becauſe if they be eaten often, they ingender naughtie bloud, hurt the head, dull the ſight, and make one to be troubled and affrighted with terrible dreams.

Onions, Good againſt barrenneſſe and bleeding.

The like may be ſaid of *Onions.* And yet (according to ſome) the water of the diſtilled roots, being done in June,

June, and drunk often by women that are barren, helpeth them: As alſo the ſame water helpeth the bleeding at the noſe, if fine cotten be dipped in it, and put up into the noſtrils.

Good against warts.

And of *Onions* it is likewiſe written, that if they be bruiſed, and mixed with ſalt and hony, they will then deſtroy warts, and make them fall off by the very roots.

A medicine to be uſed at the death of a ſhrew.

Alſo there is another propertie in *Onions*, which (when I had little elſe to do) I obſerved in this following Epigram.

He that a bad wife follows to the grave,
And knows not how, for joy, a tear to crave,
May Onions uſe to make him weep in ſhew;
For who can weep indeed to loſe a ſhrew?

Garlick.

Garlick, called in Greek σκόροδον, and in Latine *Allium*, is hot and drie (as *Galen* writeth) even unto the fourth degree. It is called the countrey mans Triacle, and hath many good properties: And amongſt other things, one thing very ſtrange I find recorded of it; *viz.* that though the often eating of it do harm the whole and perfect ſight, yet the moiſture or juice infuſed into the eyes, doth comfort a dull ſight. It is ſaid that the ſtrong ſmell of *Garlick* is put away by the chewing of *Cummin-ſeed*; or by eating a green bean or two after it.

Good for the eyes.

How when a woman doubteth, ſhe may know whether ſhe be with child.

Alſo I find that if a woman doubt of her being with child, let there be ſet all night by her bed ſide ſome *Garlick*, and if ſhe ſmell it not, then ſhe may conclude that ſhe hath conceived, or is with child.

Sleep not preſently after the eating of *Radiſh*, for that will cauſe a ſtinking breath.

Parſnep.
Carret.
Turnep.

And withall let this be noted, that the *Parſnep* and *Carret* are hot and dry about the third degree. The *Turnep* is hot and moiſt: This is a root which is eaten

Swine eat no Turneps.

Skirret. *Artichoke.* *Elecampane.*

of men, but loothed of ſwine. The *Skirret* is moderately hot and moiſt. The *Artichoke* is hot and drie unto the ſecond degree. The *Elecampane* is hot in the third, but drie in the ſecond degree: and the chief virtues of it are to open the breaſt, or to help ſhortneſſe of wind cauſed by tough flegme, which ſtoppeth the lungs. Alſo it openeth oppilations of the liver and ſplene, and comforteth the ſtomach, as ſaith *Schola Salerni*,

The virtues of Elecampane.

Ennula campana, hec reddit præcordia ſana, &c,
Elecampane ſtrenghtens each inward part,
Aſſwageth grief of mind, and cheers the heart.
A little looſeneſſe is thereby provoken;
It quelleth wrath, and makes a man fair-ſpoken.

Rape. *Tarragon.* *Red Darnell.*

The *Rape* is alſo of an hot temper. And *Tarragon* is hot and drie to the third degree. The *Red Darnell* is hot alſo, and good to be drunk for piſſing the bed.

Tobacco.

The kinds of Tobacco, and where it was firſt found.

Of *Tabaco*, or (as it is commonly called) *Tobacco*, there be principally two kinds, ſaith Mr *Gerard*: one greater, the other leſſe. The greater was firſt found in thoſe provinces of *America* which we call the Weſt *Indies*. The leſſer comes from *Trinidada*, an iſland near unto the continent of the ſaid *Indies*. To which ſome have added a third ſort. And ſince the firſt diſcovery, there have been plantations made in other places.

The names of Tobacco.

The people of *America* call it *Petum*: Others *Sacra herba*, *Sancta herba*, & *Sana ſancta Indorum*. The reaſon being (as I take it) becauſe when the *Moores* and *Indians* have fainted, either for want of food or reſt, this hath been a preſent remedie unto them to ſupply the one, and help them to the other. And ſome have called it *Hyoſcyamus Peruvianus*, or *Henbane* of *Peru*; which alſo Mr *Gerard* aſſenteth unto, verily thinking that it is a *Species Hyoſcyami*, (for there be more kinds of *Henbane* then one) chiefly in regard of the qualitie; becauſe it bringeth drowſineſſe, troubleth the ſenſes, and maketh a man, as

it

it were drunk, by taking of the fume onely. Of ſome it is named *Nicotiana exotica*: & by *Nicholas Monardis* it is named *Tabaco*. Which ſaid *Monardis* witneſſeth that it is hot and drie in the ſecond degree.

The quality of Tobacco.

The Phyſicall & chirurgicall uſes of it, are not a few; and being taken in a pipe it helpeth aches in any part of the bodie; being good alſo for the kidneys by expelling wind. But beware of cold after it; neither take it wantonly, nor immoderately. And know that ſome commend the ſyrupe before the ſmoke: yet the ſmoke (ſay they) phyſically taken is to be tolerated, and may do ſome good for rheums, and the forenamed maladies: which, whileſt ſome might cure, they make them worſe. For we ſee that the uſe is too frequently turned into an abuſe, and the remedie is proved a diſeaſe; and all through a wanton and immoderate uſe. For *Omne nimium vertitur in vitium.*

The virtues of Tobacco.

The uſe of things is many times turned into an abuſe.

To quaffe, roar, ſwear and drink Tobacco well;
Is fit for ſuch as pledge ſick healths in hell:
Where wanting wine, and ale, and beer to drink,
Their cups are fill'd with ſmoke, fire, fume, and ſtink.

A leſſon for ſwearing ſwilling ſwaggerers.

I remember an excellent ſalve which I am taught to make of green *Tobacco*: the receipt whereof is thus. Take the leaves of *Tobacco* two pounds, hogges greaſe one pound: ſtamp the herb ſmall in a ſtone mortar, putting thereto a ſmall cup full of red or claret wine: ſtirre them well together, cover the mortar from filth, and ſo let it reſt untill the morning: then put it to the fire and let it boil gently, continually ſtirring it untill the wine be conſumed; then ſtrain it and ſet it to the fire again, putting thereto one pound of the juice of the herb, & of Venice turpentine 4 ounces; boil them all together to the conſumption of the juice: then adde thereto two ounces of round *Ariſtochia*, or *Birthwort*, in

An excellent ſalve to be made with the green leaves of Tobacco.

moſt fine powder, with wax ſufficient to give it a bodie: and ſo thou haſt made an accurate ſalve for wounds, or for old filthie ulcers of the legs, &c.

The Indian women take no Tobacco.

The women of America (as *Gerard* mentions in his Herball) do not uſe to take *Tobacco*, becauſe they perſwade themſelves it is too ſtrong for the conſtitution of their bodies: and yet ſome women of England uſe it often, as well as men. And, queſtionleſſe, thoſe natives amongſt whom it groweth, may take more at once then any one of us. It is ſaid that Sir *Francis Drakes* mariners brought the firſt of this herb into England in the yeare 1585, which was in the 28 yeare of Q. Elizabeth, and 3 years before Tilburie camp.

When Tobacco came firſt into England.

Betonie.

Betonie, in Greek κιστον, in Latine *Betonica* and *Vetonica*, is hot and drie in the ſecond degree.

This herb hath an infinite number of ſoveraigne virtues, being very good for the head; taken by ſome in a pipe, as *Tobacco*, and not ſeldome mixed with *Tobacco*: it helpeth alſo the bitings of mad dogs by drinking the juice or powder of it, and by binding the green leaves to the bitten place.

Plinie relateth a ſtrange propertie pertinent to this herb: for, * ſaith he, if ſell ſerpents be encloſed round about with it, they fall at ſuch oddes that they kill each other preſently. This herb is alſo good to help women in their travail.

*Lib. 25. cap. 8.

And thus hitherto I have ſpoken of ſuch parcels of dame *Tellus* ſtore, as are onely hot of temper: unto which I might adde yet thouſands more; whether they be ſuch as are pleaſant in ſhew, ſweet in ſmell, delicate in taſte, wholeſome in operation, and the like: but the earth you know is large: and becauſe I am to ſee ſomething every where, I cannot ſtay long any where; leſt the fourth day dawn, before the third be finiſhed.

Theſe

Theſe herbs following are cold and moiſt.

IN the next place therefore I muſt bring to your admirations ſome other parcels of another temper, wherein you may likewiſe ſee Gods wiſdome flouriſhing: for at which ſoever we look, there is a ſecret virtue that he hath infuſed into every one. In which regard divine *Du Bartas* thus,

Good Lord! how many gaſping ſouls have ſcap't
By th'aid of herbs, for whom the grave hath gap't;
Who even about to touch the Stygian ſtrand,
Have yet beguil'd grim Pluto's greedie hand!
Oh ſacred ſimples that our life ſuſtain,
And when it flies can call it back again!
'Tis not alone your liquour, inlie tane,
That oft defends us from ſo many a bane;
But even your ſavour, yea, your neighbourhood
For ſome diſeaſes is exceeding good.

Yarrow. For the tooth-ach, head-ach, &c.

As for example, *Yarrow* (as moſt men ſay) when the leaves are green and chewed, doth help the tooth-ach. Alſo the leaves being put into the noſe, do make it bleed, and is a remedie for the megrim, a pain in the head. It is an herb meanly cold in temper, and called in Greek ἀχιλλεία, in Latine *Achillea*, becauſe it was firſt found out by *Achilles*, the diſciple of *Chiron*, and with it he cured his wounds, *Vide Plin. lib. 25. cap. 5.*

Sowthiſtle. An herb for nurſes.

Sowthiſtle is cold: the Greeks call it σόγχος, the Latines, *Sonchi*. If it be given in broth, it increaſeth milk in nurſes breaſts, cauſing the children nurſed by them, to have a good colour and clear complexion.

Groundſell.

Groundſell is ſaid to have mixt faculties: for it cooleth, and withall digeſteth. The Latines call it *Senecio*, becauſe it quickly waxeth old: ſome alſo call it *Herbutum*.

Good againſt the frets, &c.

The leaves of this herb ſtamped and ſtrained into milk, and drunk, are good againſt the Red-gum and frets in children.

Comfrey.

Comfrey is somewhat cold of qualitie, and of a clammie and gluing moisture. It is highly commended of the learned for curing of wounds, especially of the intrals and inward parts, and for burstings and ruptures; insomuch that they affirm the slimie substance of the root made in a posset of ale, and given to be drunk, cureth the pain in the back gotten by any violent motion, as wrastling, and the like; to which some adde the overmuch use of Venus: for in foure or five dayes they are perfectly healed, although there be an involuntarie *fluxus seminis* gotten thereby. In Greek it is called σύμφυτον, in Latine *Symphytum*, and *Solidago*, or *Consolida major*.

Good for to cure any wrinch in the back, and the like grief.

Lilies.

The *Water-lilies* are also highly esteemed for their virtues in curing some of the like infirmities: for those which are skilfull do affirm that a decoction of the white or yellow *Water-lilie* made of the seeds, roots, or leaves, is singular good against nocturnall pollutions, caused by dreams, or otherwise. The same cure is also wrought by the green leaves laid upon the region of the back in the small, and twvo or three times a day removed, and fresh applied. *Ger.*

Good against the same infirmities.

The Greeks call this *Water-lilie* νυμφαία, the Latines *Nymphaa*: because it takes such delight to grovv in the vvater.

Lettice.

Lactuca, in Greek θρίδαξ, and in English *Lettice*, is temperately hot and moist in the second degree.

It cooleth a hot stomach called heart-burning; and, in nurses that are hot and drie, it procureth milk; otherwise not. But it must never be eaten immoderately: for ancient Authours affirm, that generally it hindereth conception by wasting of sperm; and if it be not eschewed of vvomen vvith childe, it is a great means to make them bring forth children either raging in mind, or foolish in vvit.

Harm in too much *Lettice*.

Another hurt in *Lettice*.

Also, the use of *Lettice* is to be avoided of all that be short-

ſhort-winded, and ſpit bloud, or be flegmatick; they may not eat it often. Yet he that would live honeſtly unmarried, let him not refuſe this medicine ſet forth by *Dioſcorides* and *Galen* (as the Authour of the haven of health affirmeth) *viz.* let him bruiſe *Lettice* ſeeds, and often put them in his drink, &c.

Good to procure chaſtitie.

Purſlain is cold in the third degree, and moiſt in the ſecond. The Greeks call it ἀνδράχνη, the Latines *Portulaca.*

Purſlain.

The juice of this herb is good againſt fluxes; for it greatly ſtoppeth them. And note that the very herb holden under the tongue, putteth away thirſt and drineſſe.

Good againſt fluxes and thirſt.

Violet, in Greek ἴον, in Latine *Viola*, is cold and moiſt; being cold in the firſt degree, and moiſt in the ſecond. The leaves inwardly taken do greatly cool, moiſten, and make the body looſe or ſoluble: or outwardly applied, do mitigate all kind of hot inflammations.

Violets.

Good for coſtive bodies.

Theſe herbs following are cold and dry.

Madder.

Madder is called in Greek ἐρυθρόδανον, in Latine *Rubia*; and of its temperature the learned are not fully agreed: yet Mr *Gerard* ſaith it is cold and dry. It is good to give the decoction of the roots to burſten and bruiſed folks; which roots do alſo plentifully provoke urine: and (as ſome affirm) the very holding of the root or handling of it, dieth the handlers urine into a perfect red colour, appearing as if he piſſed bloud. Whereupon ſaith *Du Bartas*,

Good againſt bruiſes.

A ſtrange property in Madder.

O wondrous Woad, which touching but the skinne,
Imparts his colour to the parts within!

But note that this muſt be underſtood of the root held long in the hand, and freſhly gathered: for being kept and tranſported, it hath not this virtue. *Plinie* attributeth more unto it: for, ſaith he, the onely ſight of this

herb healeth the Jaundiſe. But in this laſt propertie, let the reader uſe his libertie.

Willow-wort.

Willow-wort, or *Looſe-ſtrife*, is an herb cold and dry, whoſe firſt virtues were found out by *Lyſimachus* the ſonne of *Agathocles*, and one of *Alexanders* captains, from whom it is called *Lyſimachium*, or *Lyſimachia*. *Plinie* writeth of this herb that it is of ſuch ſtrange virtue that when * Oxen at the plough are ſtriving and unrulie, let it be put into their yokes, and preſently they are appeaſed and quieted. This herb is contrary to *Betonie*; which, in theſe two verſes, you may remember,

* *Plin. lib. 25. cap. 7.*

Dn Bart.

As Betonie breaks friendſhips ancient bands,
So Willow-wort makes wonted hate ſhake hands.

Shepherds purſe.

Good againſt green wounds, fluxes of bloud, &c.

Shepherds purſe, or *Burſa paſtoris*, is cold and dry: the leaves bruiſed are good to heal green bleeding wounds: And alſo the decoction of it doth ſtop the lask, the ſpitting and piſſing of bloud, and all other bloudie fluxes.

Houſleek.

Sen-green or *Houſleek*, is alwayes green, both in ſummer and winter: Whereupon it is called in Greek ἀειζωον, which is as much as *Semper vivens*, or *alwayes living*. It is cold in the third degree, and ſomewhat drying. The juice hereof taketh away corns from the toes and feet, better then any thing that you can eaſily get: Let them be waſhed and bathed therewith, and as it were day and night emplaſtred with the skin of the ſaid *Houſleek*, and you ſhall find remedie.

Good againſt corns.

Sorrell.

Sorrell or *ſoure-Dock*, in Latine *Acida*, in Greek ὀξυζον, is cold and dry; being cold in the third degree, and dry in the ſecond.

The ſeeds of *Sorrell* drunk in groſſe red wine, ſtop the lask and bloudie flux. Alſo if one faſting do chew ſome of the leaves, and ſuck down the juice, it marvellouſly preſerveth from infections. *Eliots* caſtle of Health.

Good againſt the lask, and infection.

Plantain

Plantain, called in Greek ἀρνόγλωσσον, which is *Lambestongue*, and in Latine *Plantago*, is cold and dry in the third degree. *Plantain.*

The juice of *Plantain* drunk (like unto *Houſleek*) ſtoppeth the bloudie flux, or ſpitting or piſſing of bloud. And the leaves ſtamped and made into a Tanſie, with the yelks of eggs, ſtay the inordinate flux of terms, although it hath continued many years. *Ger. pag.* 341. But on the contrary, the decoction of *Cammomill* or *Germander*, made in wine, and drunk, voideth wind, and procureth them to flow. To ſtay fluxes. To provoke fluxes.

And thus alſo I have given you a taſte of ſome cool as well as hot herbs. And in moſt of theſe, as in ſuch other things of the ſame nature, I muſt confeſſe, that as I have ſeen a deſcription of the world ſet forth by ſuch whoſe reading was their furtheſt travell; ſo, out of good Authours, and skilfull Herbaliſts, I have both learned and taught theſe ſecrets. Unto which I have yet a few more that I intend to adde; and becauſe theſe are the moſt ſtrange, I have reſerved them unto the laſt place.

Theſe herbs which follow, are herbs of more then ordinarie properties.

AS firſt the noble * *Nepenthe*, an herb which being ſteeped and drunk in wine, expelleth ſadneſſe. * *Plin. lib.* 25. *cap.* 2.

2. Then is there the herb *Hippurin*, or *Hippice*, of which *Plinie* * writeth that it is admirable in ſtenching bloud, inſomuch that the cure is performed by the very touch of it; being alſo very good to keep one from hunger and thirſt, while it is kept in the mouth. * *Lib.* 26. *cap.* 13.

3. Alſo, there is *Nyctilops* or *Nyctegretum*, an herb which in the night * ſhineth afarre off: and, above all other creatures, at the firſt ſight it ſcareth Geeſe. * *Idem lib.* 21. *cap.* 11.

4. *Pythagoras*

* *Plin. lib. 24. cap. 17.*

4. *Pythagoras* telleth of the herb * *Callicia*, which will turn water into ice.

5. *Ophiuſta* is an herb growing in *Ethiopia*: it is of a wanniſh colour, dangerous to be looked on: and being drunk, it doth ſo terrifie the mind with a ſight of angry and dreadfull ſerpents, that through the fear of them men have * ſometimes killed themſelves.

* *Idem ibid.*

6. *Hemlock* (as ſome relate out of *Galen*, in his book *De temperamentis*) is meat to ſtorks, and poyſon to men.

7. *Sardonia*, or *Crow-foot* (as ſome write out of *Solinus*) is an herb which moveth laughter.

A bleeding herb.

8. Upon a mountain of *Cypres* called *Arcadie*, is an herb or plant growing, which if a man cut, there iſſueth a liquour like warm bloud: if with this bloud, thus warm, one man ſhould touch another, he would love him affectionately whom he toucheth. Contrariwiſe, if the bloud be cold, the touch will ingender hatred. My Authour calleth this plant, *Flabia*. See *Du Bart*. Summarie.

9. Moreover, in the ſame Authour I find (as he hath it from one *Rhamnuſius*, in his Navigations) that in the iſland called *Auſtralle*, there is an herb found, upon which whoſoever lieth down, he is firſt taken with an heavineſſe of the head, then with ſleeping, and conſequently with death.

* *Lib. 24 cap. 17.*

10. Magicians make uſe of the herb *Anacrampſeros*, which (as I find in * *Plinie*) by the very touch thereof cauſeth love to grow between man and man, aboliſhing all former hatred.

11. The like is reported in a manner of the herb *Sowbread*, which being made into little flat cakes, and taken inwardly, is a good amorous medicine, and will make one in love. *Ger.*

12. Alſo they report, ſaith *Dioſcorides*, that the herb *Snap-draggon* or *Calves-ſnout* being hanged about one, preſerveth a man from being bewitched, & maketh him gracious

gracious in the ſight of the people. *Gerard. ex Dioſcor.*

13. Enchanters alſo make great brags of the herb *Ethiopis* (which, I think, ſome call by the name of *Moly*)

14. And of the herb *Achimedis*: the firſt whereof being caſt into rivers, will drie them up; or being applied to any thing lockt or ſhut, will preſently open it: the other being caſt into an armie in the time of battel, cauſeth the ſouldiers to be in fear, and runne away. Thus ſay ſome. Neither hath *Plinie* forgotten theſe two laſt herbs: but he mentions them with a kind of deriſion, as in the 26 book and 4 chapter of his naturall hiſtorie is apparent; where he wondereth why enchanters would not make uſe of them in time of danger and extremitie. And for mine own part, this I cannot but ſay, that it is great pitie the ſecrets of nature ſhould be ſoiled by infamons magick, and by the ſuperſtitious ignorance of ſorcerers.

It is pitie that natures ſecrets ſhould be ſoiled by magick.

15. Unto theſe, *Apollodorus* hath added the herb *Æſchynomen*, which draweth in the leaves when the hand of any one approcheth to touch it.

16. Like unto which is the herb *Sentida*, growing in * *India*: for if any one come near and touch it, or throvv ſand, or any thing elſe upon it, preſently it becometh as if it were withered, and cloſeth up the leaves; ſo continuing as long as the man ſtandeth by: but ſo ſoon as he is gone, it openeth freſh and fair: and touching it again, it withereth as before.

* *Purchas Pilgrim. part. 1. lib. 5. cap. 12.*

Theſe, you ſee, are rarities: and being now ready to paſſe away from them, I ſhould come to ſpeak ſomething of grain; as *wheat, rie, barley, lintels, oats, peas, beans, rice*, with ſuch other like; and gladly would I do it, but that (methinks) I am called another way: for lo I have diſcovered the tops of yonder trees; and one by one, I mean to view them.

Here the Authour beginneth to ſpeak of trees.

Vitex,

Agnus caſtus.

* *Lib. 24. cap. 9.*

Vitex, or the *chaſte tree* (which the Greeks call ἄγνος, and λύγος, becauſe, ſaith * *Plinie*, certain matrons among the Athenians, deſirous to live chaſte, did lay the leaves of it in their beds under them) is called in the Latine *Salix marina*, or *Salix amerina*, or *Piper agreſte*, or *Agnus caſtus*. And, as *Plinie* writeth, it is of two kinds; the greater, and the leſſer. The firſt groweth up much like a willow tree: but the other brancheth out and ſpreadeth more, having vvhiter and dovvnier leaves then the former. Our * countreyman, and an excellent Herbaliſt, ſaith that it groweth up after the manner of a buſhie ſhrubbe or hedge tree, having many tvviggie branches, very pliant and eaſie to be bent like unto the vvillow: the flovvers are of a light blevv colour, and very ſvveet in ſmell; the leaves long and narrovv; and the fruit ſmall and round like unto the grains of pepper. And note that the flovvers grovv at the uppermoſt end of the branches, cluſtering cloſe together.

Ibid.

* *Mr. Gerard.*

Some ſay that it is a plant hot and drie in the ſecond degree; others name the third.

It is a ſingular medicine for ſuch as would live chaſte, in vvhat ſort ſoever it be taken, vvhether in povvder, or decoction, or the leaves vvorn about the bodie.

Alſo it driveth avvay vvindineſſe of the ſtomach, openeth and cureth the ſtoppings of the liver and ſplene, vvith ſundry ſuch other needfull cures.

Willow.
From whence came the firſt uſe of willow garlands.

Willow is of a much like nature; and therefore it is yet a cuſtome, that he vvhich is deprived of his love, muſt vvear a vvillovv garland. Alſo the green boughs vvith their leaves may vvell be brought into chambers, and ſet about the beds of thoſe vvho are ſick of agues; for they do mightily cool the heat of the aire; vvhich thing cannot but be a vvonderfull refreſhing to the ſick patient.

Tamarisk.
Good for the ſplene or mit.

Tamarisk is a little tree vvell knovvn; the decoction of vvhoſe branches being drunk in vvine, and a little vineger,

vineger, is of great virtue againſt the hardneſſe or ſtopping of the ſplene or milt: for this tree doth by nature ſo waſte the milt, that ſwine which have been daily fed out of a veſſel made thereof, have been found to have no milt at all.

Roſe. The temper and virtue of Roſes.

Roſe is cold in the firſt degree and drie in the ſecond, ſomewhat binding, eſpecially the white Roſe. The red is leſſe cold, more drie, &c. As for the damask and muſk Roſe, it is hot, and moiſt withall. The damask water is ſweeteſt; but the red is wholeſomeſt. And of the red Roſe leaves a conſerve may be made, which is good, not onely to cool, but alſo to comfort the principall parts of the bodie, *viz.* the head, heart, ſtomack, liver, ſplene, and reins. Thus you may make it. Take the buds of red Roſes ſomewhat before they be ready to ſpread; cut the red part of the leaves from the white, ſhake out the yellow ſeeds: then take the red leaves and beat them very ſmall in a ſtone mortar with a peſtle of wood; and unto every ounce of Roſes put three ounces of ſugar, by little and little, in the time of the beating, and beat them all together untill they be perfectly incorporated: then put it in a glaſſe or gallipot; ſtop it cloſe, and ſet it in the ſunne for a ſeaſon, and it is made. And know that it will remain in full virtue for a yeare or two, but then it decayeth.

Conſerve of Roſes, what it is good for.

How to make the conſerve.

Myrtle. Good againſt fluxes.

Myrtle is a little low tree growing in ſome hot countreys, having ſmall dark leaves, bearing berries which are of a binding nature, and good to ſtop any iſſue of bloud. This is a tender plant, not able to endure any cold; and (as Authours affirm) it was wont to be worn of the Romane captains garland-wiſe in triumph; namely then, when they had obtained any victorie without ſlaughter of men. Alſo in times paſt this tree was conſecrated to *Venus*: and thereupon I find in *Plinie*, that amongſt the Romanes there was an altar belonging to *Venus*, which they

Myrtle garlands.

Myrtle berries uſed for pepper.

they call by the name of *Murtia.* The ſaid Authour alſo affirmeth, that before pepper was found out, the myrtle berries ſerved in ſtead thereof, See *Plin. lib.*15. *cap.*29.

Ebone.

A ſmoke good for the eyes.

Ebone is a tree growing in India and Ethiopia, in taſte being ſharp and biting. If it be burnt, it yields a ſweet ſmell, the ſmoke whereof is not offenſive, but good againſt many diſeaſes of the eyes: as alſo the green wood is ſo full of ſap, and withall ſo fattie, that it will flame like a candle. Some have ſaid that it bears neither fruit nor leaves; but this is a falſe opinion, as they have witneſſed who have ſeen the tree, and taken the true picture of it. The outward parts are white, but within it is black. That which groweth in India, is not in ſuch eſtimation as the Ethiopian *Ebone*; for it is ſpotted with white and yellow.

Sethim.

Sethim is a kind of tree ſomething like a *White-thorn*; the timber whereof never rotteth. Of this tree, Noah, according to Gods command, made the ark; as we reade in Geneſis.

Palm.

Palm, or *Date* trees, are both one. This tree groweth plentifully in Egypt, and other parts of Africa; but thoſe which are in Paleſtine and Syria are the beſt: they grow likewiſe in moſt places of the Eaſt and Weſt Indies.

A token of victorie.

The branches of this tree were wont to be carried as a token of victorie, becauſe they are of this nature, *viz.* that they will ſhoot upward, though oppreſſed with never ſo great weight: neither do the leaves of it ever fall. *Elianus* remembreth another propertie; for (ſaith he) the report runneth thus, that in *Delus* the Olive tree and the Date tree flouriſh moſt fruitfully, which when *Latona* had touched, ſhe was ſuddenly disburdened of childebirth, whereas before ſhe could not be delivered. *Elian. lib.* 5. Alſo they grow by couples, male and female: but the female is onely fruitfull.

Lenna delivered by the Date.

Plane.

The *Plane* tree, called *Platanus*, is a ſpreading tree with

with broad leaves: in times paſt it was greatly eſteemed in Italie for the ſhadow thereof; inſomuch that (as *Plinie* reporteth) they often bedewed it with wine to make it grow. The old Romanes were vvont to banquet much under theſe trees. And there is, ſaith *Plinie*, no greater commendation of this tree, then that it keepeth away the ſunne in ſummer, and entertaineth it in winter. A banqueting tree.

We reade of *Xerxes* King of Perſia, that he was ſtrangely enamoured on this tree, having it in ſuch ſingular admiration that he became a ſervant to it. For in Lydia (as *Elianus* * writeth) when *Xerxes* happened to ſee a tall and loftie fair *Plane* tree, he made a whole dayes tarriance by it; and, no neceſſitie conſtraining him ſo to do, he pitched his pavilions and tents in the void and emptie places round about the ſame. He alſo hanged precious jewels of great value upon it, adorning and beautifying the boughs and branches with chains of gold, with bracelets and tablets, with ſpangles and ſuch like coſtly things, yielding thereunto great worſhip and reverence; appointing alſo an overſeer to keep, preſerve, and defend the ſame from all caſualties. This was a ſtrange crotchet; and little or nothing the better was the poore tree for all this love and braverie. * *Variab. hiſt. lib. 2.*

Pepper (whereof there are divers ſorts) groweth at the foot of other trees, climbing upon them like to ivie, and is in bunches like grapes. *Pepper.*

Ginger groweth like young reeds, with a root like a lilie: it is plentifull in *Malabar*, or *Malavar*, a province in India *intra Gangem*. *Ginger.*

Cinnamon is the inner bark of a tree as big as an olive; with leaves like bay leaves, and fruit like an olive: the drying of the bark maketh it roll together. Within three years the tree yieldeth another bark, as before. They of *Ormuz* call it *Darchini*, that is, *wood of China*: and ſelling it at Alexandria, they call it *Cinnamomum*, which *Cinnamon.*

which is, *quaſi Amomum ex Sina delatum. Purch. ex Garcia ab horto.*

Nutmegge and Mace. The *Nutmegge-tree* is like a peach or peartree, and groweth moſt in *Banda* an iſland in Aſia, and in *Java*. The fruit is like a peach, the inner part whereof is the *Nutmegge*, which is covered and interlaced with the *Mace*. For when the fruit is ripe, the firſt and outermoſt part openeth, as it is with our walnuts; then the *Mace* flouriſheth in a fair red colour, which in the ripening becometh yellow.

Cloves. *Cloves* grow in the *Moluccas* on trees like bay-trees, yielding bloſſomes, firſt white, then green, afterwards red, then hard: and this hard thing is the *Clove*. When they be green they yield the pleaſanteſt ſmell in the world. And (as it is reported) being ripe they are of ſuch an extraordinary heat and drineſſe, that in two dayes they will ſuck out and drie up ſuch veſſels of water, as ſhall happen to ſtand in the ſame room where they are. Theſe ſpices and drugs, with many other, are the fruits of India.

Cypreſſe. The *Cypreſſe* is a tree growing on drie mountains, and moſt commonly in hot countreys. It is very tall, and the timber thereof is yellowiſh and of a pleaſant ſmell, eſpecially being ſet near to the fire; and of ſuch durable nature, that it doth neither rot nor wax old, nor yet cleaveth or chappeth it ſelf. See *Plin. lib. 16. cap. 33, & 42.*

Pine. The *Pine* is a tree of the ſame nature, not ſubject to worms or rottenneſſe, and therefore much uſed, where it groweth, to make ſhips. The leaves are hard-pointed, ſharp and narrow, continuing green all the yeare; and the ſhadow thereof* will not ſuffer any plant to grow under it.

* *Plin. lib. 17. cap. 12.*

Cedar. *Cedar* is a tall great tree which groweth in Africa, and Syria; many of them upon mount Libanus. They be ſtraight

ſtraight and upright like the Firre-tree: their leaves are ſmall, thick, and of a ſweet ſmell. This tree hath fruit on it all times of the yeare, which fruit is like to that of the Firre & Pine-tree, but greater and harder: and at this day (as ſome affirm) there are found upon mount *Libanus*, *Cedars* planted by King Solomon: the truth of which I will not ſtand to juſtifie.

Terebinth. *Terebinth* is a tree from whence Turpentine iſſueth.

Picea. *Picea* is a tree that droppeth pitch; it groweth in Greece, Italy, France, Germanie, and all the cold regions even unto Ruſſia. It remaineth alwayes green like unto the *Pine*; and, by ſome, is ſuppoſed to be a wild kind of *Pine*: eſpecially ſeeing the *Pine* affordeth Roſin, Pitch and Tarre. Yet ſome attribute Pitch to the great *Cedar*, Roſin to the wild *Pines* chiefly, and Tarre to the *Pine* called the *Torch-Pine*.

Cocus. There is a tree in India, called the Indian *Coquo*, or *Cocus*, being the moſt ſtrange and profitable tree in the world; of which in the iſlands of *Maldiva* they make and furniſh whole ſhips: ſo that (ſave the men themſelves, * ſaith one) there is nothing of the ſhip or in the ſhip, neither tackling, merchandiſe, or ought elſe, but what this tree yieldeth. It groweth high and ſlender, the wood is of a ſpungie ſubſtance, eaſie to be ſewed, when they make veſſels thereof, with cords made of *Cocus*. It hath a continuall ſucceſſion of fruits, and is never without ſome: they grow like a kind of nut, which is of a very large ſize, having two ſorts of husks as our walnuts; the uppermoſt whereof is hairy like hemp, and of this they make cordage; and of the next they make drinking-cups. When the fruit within theſe ſhells is almoſt ripe, it is full of water, which, as it ripeneth, changeth into a white harder ſubſtance: at the firſt this liquour is ſweet, but with the ripening growweth ſowre. The tree affords a very medicinable juice; and, if it ſtand one

* Mr *Purchas* pilgrim. part. 1. *lib.* 5. *cap.* 12.

houre in the ſunne, it is good vineger; but diſtilled, it may be uſed in ſtead of wine or *Aquavitæ*. There be wayes alſo to make ſugar of it, and of the meat in the nut dried they make oyl: Of the pith or heart of the tree they make paper: of the leaves they make coverings for their houſes, tents, mattes, and the like. Nay, their apparell, firing, and other neceſſary commodities, they gather from this tree. Thus ſome. Or, according to others, it is thus deſcribed. In the iſle of *Zebus* there is a fruit which they call *Cocos*, formed like a *Melon*, but more long then thick: It is incloſed with divers little skinnes, ſo ſtrong and good as thoſe that environ a Date ſtone. The iſlanders make thread of the skinnes, as ſtrong and good as that which is of hemp. The fruit hath a rinde like a drie Gourd, but farre more hard; which, being burned and beaten to powder, ſerveth for medicine. The inward nut is like unto butter; being both as white, and as ſoft, and beſides that, very ſavoury and cordiall. They make uſe of this fruit alſo in divers other things. For if they would have oyl, they turn and toſſe it up and down divers times: then they let it ſettle ſome few dayes, at which time the meat will be converted into a liquour like oyl, very ſweet and wholeſome, wherewith they oftentimes anoint themſelves. If they put it into water, the kernell is converted into ſugar; if they leave it in the ſunne, it is turned into vineger. Towards the bottome of the tree they uſe to make a hole and gather diligently into a great cane the liquour that diſtilleth, which amongſt them is of as much eſteem as the beſt wine in theſe parts: for it is a very pleaſant and wholeſome drink.

Arbore de rais.

There is alſo among the Indians a tree called *Arbore de rais*, or *the tree of roots*, called alſo the *Indian fig-tree*, and by ſome affirmed (with more confidence then reaſon, ſaith one) to be the tree of Adams tranſgreſſion. It groweth

groweth out of the ground, as other trees, and yieldeth many boughs, which yield certain threads of the colour of gold, which growing downwards to the earth do there take root again, making as it were new trees, or a wood of trees, covering ſometimes the beſt part of a mile.

Arbore triſte.

There is alſo another tree which ſome call the *Indian mourner*, or *Arbore triſte*, the ſad and ſorrowfull tree. It hath this propertie, that in the day time and at ſunne-ſetting you ſhall not ſee a flower on it: but within half an houre after, it is full of flowers, which at the ſunne-riſing fall off, the leaves ſhutting themſelves from the ſunnes preſence, and the tree ſeeming as if it were dead. The Indians have a fable of one *Pariſatico*, who had a daughter, with whom the ſunne was in love; but lightly forſaking her, he grew amorous of another: whereupon this damoſel ſlew her ſelf, and of the aſhes of her burned careaſe came this tree. A prettie fiction this: *Ovid* himſelf hath not a better.

A weeping tree.

In the iſland of *Hierro* (being one of the ſeven iſlands of the *Canaries*) is a tree which diſtilleth water inceſſantly from the leaves thereof, in ſo great abundance, that not onely it ſufficeth thoſe of the iſland (for there is no other water in the iſland) but alſo might furniſh the neceſſary uſes of a farre greater number of people. This ſtrange tree is alwayes covered with a little miſt, which vaniſheth by degrees, according as the ſunne ſheweth himſelf.

When the Spaniards (ſaith my Authour) took upon them to conquer this iſle, they found themſelves almoſt diſcomfited, becauſe they ſaw neither fountains, ſprings, nor rivers: and enquiring of the iſlanders where they had their water, they anſwered that they uſed none but rain-water, & in the mean time kept their trees covered, hoping by this ſubtiltie to drive the Spaniards out of the

iſle again. But it was not long before one of their women, entertained by a Spaniard, diſcovered the tree with the properties of it; which he at the firſt held for a fable, untill his own witneſſe ſaw it was true; whereupon he was almoſt raviſhed with the miracle: but the woman was put to death by the iſlanders, for her treacherie.

Barnacle tree.

In the north parts of Scotland and in the iſlands adjacent called *Orchades*, are certain trees found whereon there groweth a certain kind of ſhell-fiſh, of a white colour, but ſomewhat tending to a ruſſet; wherein are contained little living creatures: For in time of maturitie the ſhells do open, and out of them by little and little grow thoſe living creatures; which falling into the water when they drop out of their ſhells, do become fowls, ſuch as we call *Barnacles* or *Brant Geeſe*: but the other that fall upon the land, periſh and come to nothing. Mr *Gerard* affirmeth that he hath ſeen as much in *Lancaſhire*, in a ſmall iſland which is called the *Pile of Foulders*: for there be certain boughs of old trees, and other ſuch like rubbiſh caſt up by the ſea, whereon hangeth a certain ſpume or froth, which in time breedeth unto a ſhell: out of which by degrees cometh forth a creature in ſhape like a bird; ſending out firſt a ſtring or lace, as it were, of ſilk finely woven, and of a whitiſh colour; then follow the legs, and afterwards more and more, till at the laſt it hangeth by the bill: ſoon after it cometh to maturitie and falleth into the ſea, where it gathereth feathers, and groweth to a fowl bigger then a mallard, and ſomething leſſe then a gooſe, being ſomewhat coloured like to our mag-pies. This Mr *Gerard* teſtifieth to be true upon his own knowledge; as in his Herball is apparant.

And thus (gentle reader) I would here end, not onely this Chapter and Section, but alſo the firſt part of my book,

book, were it not that I have a deſire to ſpeak a word or two of things growing under ground, and within the earth: which, as briefly as I can, ſhall be handled in the following Appendix.

An Appendix to the two former Sections; diſcourſing ſomewhat concerning Metalls, and ſuch like things as are under ground.

IN the ſecond dayes work I had occaſion to ſpeak of Fiery, Aierie, and Watery Meteors: all which by the Philoſophers are named bodies imperfectly mixt, being but a little durable. And now, being to ſpeak of things under ground, I am come to bodies more perfectly mixt, and of a longer continuance, becauſe they conſiſt of a more ſolid and conſtant concretion of Elements.

Their names in generall, are either *Mineralia*, Mineralls; *Foſſilia*; or *Metalla*.

They are *Mineralia*, becauſe they are generated in Mines; that is, in the veins, pores, and bowells of the earth.

They are *Foſſilia*, from *Fodio, to dig*, becauſe they are digged out of the earth.

And they are *Metalla*, *Metalls*, from the Greek word μεταλλᾶν, which is *to ſearch*, or *find out*; becauſe, with much labour and coſt they are ſought out of the veins and bowells of the earth.

That name which I inſiſt upon, is this laſt: And that the kinds of Metalls may the better be remembred, this ſhort table would be obſerved.

Metalls are either
- Principall { which are of themſelves; as Sulphur and Mercurie, being (as it were) the father and mother of all metalls.
- Leſſe principall { derived from the principall
  - more pliable { pure { more { Gold. / Silver. } / leſſe; having either more { Brimſtone, or Quickſilver. }
  - leſſe pliable { Hard { ſtones { common { ſolid { ſhining. / not ſhining. } / full of pores, as the Pumex and Tophus. } / precious { more noble, ſhining more. / leſſe noble, ſhining leſſe. }
    - Brittle, or of a friable nature; eaſie to be brought into crumbes: And theſe are all kinds of precious earths, and ſucks of the earth: as *Terra Lemnia, Samos, Bitumen, Sal*, &c.

Of theſe kinds I purpoſe to ſpeak a word or two, which ſhall be as it were to explain the table to ſuch as know it not.

The firſt, or principall metalls, are *Sulphur*, and *Mercurie*: Theſe are of themſelves, becauſe other metalls do not help to make them, but they help to make other metalls.

Brimſtone. *Sulphur* or *Brimſtone*, is ſaid by ſome to be the fat of the earth with fiery heat decocted unto his hardneſſe; which is the cauſe that it ſo ſpeedily is enflamed, and burneth even in water.

Or thus. *Sulphur* is a metallick ſubſtance or matter, conſiſting of a more ſubtill Exhalation, fat and unctuous, ſhut up within the veins of the earth. It will burn ſooner then the fat of beaſts: for although it be fatter then *Brimſtone*, yet it is farre colder.

Mercurie

Mercurie or *Quicksilver* is a ſlimie water, mixt with a pure white earth; which metall, for the matter whereof it doth conſiſt, is thin, cold and heavie. *Quick-ſilver.*

Or thus, *Quicksilver* is a metallick matter, conſiſting of a waterie vapour, more ſubtil then ordinary, which is mixed with earth to conglutinate or knit it together; and, by the heat of *Sulphur*, it is digeſted into what it is. It pierceth metalls, becauſe of the extream thinneſſe; which, together with the heat of it, makes it be in continuall motion: and the motion, by a Metaphor, cauſeth it to be called *Quicksilver*. Moreover, it is alſo called *Mercurie*, becauſe as Mercurie is joyned to all the Planets, ſo this to all metalls: or as Mercurie is moved many wayes, ſo this is apt for any motion.

Metalls derived from the two firſt.

The leſſe principall metals are derived from theſe firſt. I call them leſſe principall becauſe they are not of themſelves, but produced by the help of the other two.

Theſe I divide into two ſorts; the pliable, and the leſſe pliable.

Pliable metalls of the pureſt kind.

Pliable metalls are pure: and that, either more or leſſe. The more pure, are *Gold* and *Silver*.

Gold.

Gold is the onely pureſt of all metals, and is compoſed of a moſt pure red *Sulphur*, and of the like *Quicksilver*: they are red, but not burning. This metall is onely perfect; all other be corruptible. It is perfect, becauſe is concocted with ſufficient heat, and mixture of *Sulphur*: whereas all other metals, either are not ſo well concocted, or elſe they have not the due quantitie of brimſtone: and (as it is affirmed by the Alchymiſts) becauſe nature in all her works ſeeketh the beſt end, ſhe intendeth of all metals to make gold: but being hindred, either for want of good mixture, or good concoction, ſhe bringeth forth other metals; although not ſo precious, yet in their ſeverall uſes, every way as profitable, if not more: for it is ſcarce a queſtion * whether there be more

Moores *Utopia.*

uſe to the neceſſitie of mans life, in Iron and Lead, then is in Gold and Silver. Gold never ruſteth, both becauſe of the pureneſſe of its parents, free from poiſonous infection; and alſo becauſe it is ſo ſolidly compoſed that no aire (which cauſeth all things to corrupt) can be received into it.

This perfection, together with the rareneſſe, and beautie of it, hath cauſed fond mortals to doat ſo much upon it as they do. Nay, will not one pound or ounce of this go further then ten, either ounces or pounds of honeſtie? The Poets ſaying agreeth to it.

Aurea nunc vere ſunt ſecula, plurimus auro
Venit honos.

This is the golden age, not that of old:
For now all honour's to be bought with gold.

And hereupon I think it is, that moſt men diſpraiſe this metall, and yet but few who would not have it.

Diverſas hominum videam cùm ſparſa per artes
Ingenia, eſt cunctis ars tamen una viris.
Omnibus idem animus gratos ſibi quærere nummos:
Omnis inexhauſtas undique poſcit opes.

When I behold the wits of men inclin'd
To divers arts, I all of them do find
In this one art to meet; they ſhun no pain
Wiſh'd wealth to heap up, and augment their gain.

Nay, they are not common feeches and plots, but ſtrange and bloudie damned practiſes which are often uſed to get and obtain the riches of the world. Which *Ovid* could diſcern a long while ſince; and therefore he ſaith,

Metamorph. lib. 1.

Effodiuntur opes irritamenta malorum:
Jámque nocens ferrum, ferróque nocentius aurum.

Riches (thoſe fond enticements unto ill)
Are digged up; and iron which doth kill.
But Gold it is which doth more harm to men
Then iron blades, though ſteel'd, though ſharp, though keen.

Or,

Or, as another ſaith,

Aurum, deſtructor vitæ, princépſque malorum,
O quàm difficiles nectis ubique dolos !
O utinam natum nunquam mortalibus eſſes,
Dulcia ſuppeditas quæ nocumenta viris !
Gold, lifes deſtroyer, and of miſchiefs chief,
Oh what ſtrait wiles doſt thou knit, paſt belief!
Would thou hadſt ne're been born to mortall wights,
Sith harm to men reſts in thy falſe delights !

Theſe are the complaints. But it is neither in Gold nor Iron or the like, that theſe evils reſt ; the cauſes of ill ought rather to be imputed to the devil and wicked men. For true it is,

All goods are good to good men that well uſe them,
But they are bad to fools who do abuſe them.

And thereupon ſaith *Du Bartas*,

I know to man the earth ſeems (altogether)
No more a mother, but a ſtep-dame rather ;
Becauſe (alas) unto our loſſe ſhe bears
Bloud-ſhedding Steel, and Gold, the ground of cares:
As if theſe metals, and not mans amiſſe,
Had made ſinne mount unto the height it is :
To pick a lock, to take his neighbours purſe,
To break a houſe, or to do ſomething worſe ;
To cut his parents throat, to kill his prince,
To ſpoil his countrey, murder innocence.
For, as a caſk through want of uſe grown fuſtie,
Makes with his ſtink the beſt Greek malmſey muſtie:
So Gods beſt gifts, uſurpt by wicked ones,
To poiſon turn through their contagions.

What pains do not men take to winne gold ; every man hath one way or other to hunt after it : but the Alchymiſt, deſpiſing all other wayes, as ſlow, unnaturall, and unprofitable, laboureth, either to help nature in her work

work. as of unperfect metals to make perfect, or elſe to force nature to his purpoſe, by his quinteſſences and Elixers; ſo that what by purging, what by concocting, what by mixing of Sulphur and Quickſilver, and much other like ſtuffe, at length he turneth the wrong ſide of his gown outward, all the teeth out of his head, and his bodie from health to a palſie, and then he is a Philoſopher, and ſo he muſt, nay, will be called.

It is ſaid of Gold that it waxeth cold towards daylight: inſomuch that they who wear rings of it, may perceive when the day is ready to dawn.

Silver. *Silver* is the moſt pure metall next unto Gold: it hath an indifferent good concoction, but it wanteth ſufficient heat in the mixture, and thereupon it looketh pale. It is a metall begotten of pure white Mercurie, and of clear white Brimſtone or Sulphur.

Pliable metalls leſſe pure. The leſſe pure pliable metalls, conſiſt ſome of them of more Brimſtone; ſome, of more Quickſilver: neither are any of theſe two ſo pure, as thoſe in the mixture of Gold and Silver.

Braſſe and *Copper.* *Braſſe* is an impure metall, conſiſting moſt of a red and thick Sulphur, and of a little Quickſilver ſomething impure: that which cometh from *Cyprus* is called *Copper*, and is the pureſt, as being of beſt digeſtion, and neareſt unto Gold; **Braſſe, Latten,* & ſuch like, being no other then divers kinds of *Copper*. In ancient time, this metall was in greater eſteem then Iron: for they did not onely make their armour of it, but their bucklers alſo and their lances; becauſe they would not be worn, either with age or uſe.

*Some ſay Braſſe is not naturally, but artificially made.

Copperas. *Copperas* is a mineral of a near nature unto Braſſe or Copper: it is ſaid by ſome to be mixed of humours ſtrained by drops into ſmall holes. And perhaps it is nothing elſe but the more raw and impure ſubſtance of that which is the matter of Copper, with leſſe Quickſilver in

in it, and that alſo of a baſer qualitie. It is hot and drie in the fourth degree, vehemently binding, being of great force to ſeaſon and preſerve raw fleſh, (as ſome affirm) and is alſo good to beget ſound fleſh in feſtered ſores, and to ſtench bloud. It is of a green, yellow, and a skie colour: but the beſt hath white ſpots in it. See more afterwards in *Vitriol.*

Iron is a common metall, neceſſary for the uſe of mans life, engendred of a moſt impure Quickſilver mixed with a thick Sulphur impure and aduſt. Or thus; It is an impure metall conſiſting of much crude, earthie, aduſt Sulphur, and a modicum of filthie and bad Mercurie. This (ſaith the Philoſopher) although it be hard, yet by daily uſe it is worn and waſted: the reaſon being in regard that it hath in it leaſt of Mercurie, and moſt of an earthie Sulphur. The quenching it in water makes it harder and harder: but if it be quenched in the juice of bean-ſhells or mallows, it becometh ſoft: and ſo alſo doth the often heating it and cooling it without quenching.* *Plinie* calleth it *optimum peſſimúmque vitæ inſtrumentum, the beſt and worſt inſtrument of life.*

Iron.

How to ſoften Iron.

*Lib. 34. cap. 14.

Steel is a kind of Iron, but the pureſt and the hardeſt; or Iron refined. Naturall ſteel, which we call *Chalybs*, in times paſt was gotten out of a place in Thracia, where the people called *Chalybes* inhabited: their uſe was to go naked, and digge this metall out of the earth.

Steel.

Metalls conſiſting moſt of Mercurie, are theſe; *Lead*, and *Tinne.*

Lead is a raw and indigeſted metall, but of better digeſtion then commixtion: for it is mixed with a groſſe earthie ſubſtance, which cauſeth it to be in colour ſo black, and ſo ready to foul. It is begotten of much unpure, thick, and droſſie Mercurie; and by refining is made whiter. The kinds of this are varied by reaſon of the matter whereof it conſiſteth, and by reaſon of the heat by

Lead.

by which it is decocted: and thereupon it comes to passe that we have one sort which we call *Black-lead*; another farre whiter and clearer, as being better concocted, and more purely composed. It is of a cold and binding nature; and if it lie in the wet, moisture will increase the weight. England hath store of it.

Tinne.

Tinne, whereof great plentie also groweth in the West parts of England, in beautie and colour cometh nearest unto Silver; and of Silver wanteth nothing but soliditie and hardnesse. Some think that it is composed of Silver and Lead: but the more common opinion is, that the greatest part of it is Mercurie, white without, and red within, having a portion also of Brimstone or Sulphur not well mixed, being as it were Lead whited with Silver: for it is a raw and undigested metall, very porous and uncompact, which causeth it to crash when it is either broken or bitten. And thus farre of metalls pliable.

Metalls lesse pliable which are hard.

The lesse pliable (as I shewed in the table) are either hard, or brittle; and cannot be easily hammered, wrought or melted to a desired form.

Stones.

The hard ones, are all kind of stones. And of stones, together with bodies friable or brittle, it is doubted whether they be in the number of metalls or no; because there is great difference in the matter of their composure, &c.

To which it is answered, that although they be not in the number of such kind of metalls as are pliable, and will melt; nor yet abound with that matter of mixture which they do: nevertheless they may bear the name of metalls; according to that generall name specified in the derivation of the word *Metalla*. And in that regard I made a difference of metalls, and drew them out in the former table. Wherefore I proceed: and following them who derive stones after this manner, I say that

stones

ſtones are bodies perfectly mixt, without life, hard, of a drie and an earthie exhalation, mixed with a certain unctuoſitie; and by the durance of time, together with the force of heat and cold, and a minerall virtue, conglutinated or knit together. Or thus; they be engendred of a waterie moiſture, and fat earth mixed hard together. By which it appeareth that the matter of ſtones is a watrie humour, and a thick unctuous earth: which is not ſo to be underſtood as if the other two elements were ſeparated from their mixture; but becauſe they have not ſuch precedencie as the former. And for their efficient cauſes beſides the minerall virtue, it is ſaid to be heat and cold. Heat bringeth the ſlow humid unctuous matter through the thin parts of the earth (as the Philoſophers affirm) and cold condenſeth it, and makes it thick. They live not with a vegetative life, as plants and trees which have their nouriſhment from within; but their augmentation proceeds from an outward accretion by the appoſition of particulars adhering to them, when they lie in place convenient: and, in time, their virtues may be abated, by being long out of their right *Vbi*; in which regard ſome ſuppoſed that they had life, and died.

What ſtones are, and whereof they conſiſt.

Stones live not a vegetative life.

The common ſtones are of a more impure and groſſe matter then the other. Some whereof are ſolid; ſome more full of pores.

Common ſtones.

In the ſolid, the parts are more continued, and better compacted: yet ſo, as ſome have a kind of ſhining in them; others are dark and dull. The ſhining ſolid ſtones, are chiefly all kind of marbles: of which I find three ſorts. 1. *Alabaſter*; which is of colour very clear and white. The Greeks call it ἀλαβαστίτης· and about Thebes in Egypt it is eſpecially found; there being the greateſt plentie of it. 2. *Ophites*, which is a kind of marble having ſpots like a ſerpent. 3. *Porphyrites*, which is the red marble, mixed or enterlaced with white ſpots. The not

Alabaſter.

Ophites; *Porphyrites.*

not ſhining ſolid ſtones are theſe, and the like: 1. The *Flint*. 2. The *Marchaſite*, or that whereof they make milſtones; which being ſtruck with Steel, procures fire, like to the *Flint*. 3. *Cos*, which is of power to ſharpen edgetools; whereof we commonly call it a whetſtone. 4. *Corticula*, or *Lydius lapis*; which is of force to trie the truth in metalls: we therefore call it a touch-ſtone. 5. *Smiris*, which is an hard ſtone wherewith glaſiers cut their glaſſe: ſome call this an *Emery*. 6. Thoſe which we name wheaten ſtones, or any kind of rockie ſtone; or ſuch as may be comprehended under the word *Saxum*.

Flint.
Marchaſite.
Cos.
Corticula.
Smiris.
Saxum.

Common ſtones leſſe ſolid, are the *Pumex* and *Tophus*. 1. The *Pumex* is of a ſpungie nature, and is apt to ſwimme by reaſon of the light matter whereof it conſiſteth. 2. The *Tophus* is a ſand or gravell ſtone that may eaſily be rubbed to crumbes.

Pumex.
Tophus.

Precious ſtones.

But come now to precious ſtones: and amongſt them we have the noble, and the leſſe noble: both which ſorts are begotten of a more ſubtil and thin matter then common ſtones, and foſtered with a more ſingular influence of the heavens. My task were (in a manner) endleſſe to reckon * all ſorts: yet ſome muſt be remembred.

*Vide Plin. lib. 37.

The more noble precious ſtones, are, 1. The *Adamant* or *Diamond*, the moſt precious of all ſtones, and the hardeſt; inſomuch as it cutteth glaſſe, and yieldeth not either to ſtroke of hammer or fire: notwithſtanding it is ſoftened with * Goats bloud being warm, ſoon after ſhe hath eaten parſley or drunken wine.

Adamant.

*Some ſay that the bloud of a Deer or Lion will alſo mollifie it, and make it fit to be broken: melted Lead alſo mixed therewith in a burning furnace, doth the like.

Plinie maketh 6 kinds of *Adamant*: The 1. is *Adamas Indicus*, being near akin to cryſtall; for in colour and clearneſſe it is much like it: and in quantitie it is in bigneſſe as a filbert or haſell nut. The 2. is *Adamas Arabicus*, like to the other, excepting that it is ſomething leſſe. The 3. is called *Cenchros*, anſwering in bigneſſe

neſſe to the grain of Millet. The 4. kind is *Adamas Macedonicus*; and this is like to the ſeed of a Cucumber. The 5. is *Adamas Cypricus*; this is found in *Cyprus*, and tendeth ſomewhat to the colour of braſſe. The 6. is called the* *Siderite*; which, although it be heavier then the other, yet it is of leſſe virtue and eſteem; the colour whereof is like to the colour of iron: And this, as alſo that of *Cyprus*, are termed by * *Plinie*, degenerate kinds; becauſe they will be broken by the hammer, or otherwiſe with blowes; and may alſo be cut or raſed by other Adamants. All theſe kinds, the two firſt onely excepted, are ſaid to have their place of generation amongſt the Gold, and in golden Mines.

*Some ſay, that hath power to ſee variance between men.

*Lib. 37. cap. 4.

Saphire.

2. The *Saphire* is a very clear gem, very hard, and of a skie colour, growing in the Eaſt, and ſpecially in India: the beſt ſort hath in it as it were cloves enclining to a certain redneſſe. This ſtone is ſaid to be of a cold nature: and being drunk it preſerveth chaſtitie, corroborateth the heart, helpeth againſt the ſtinging of ſerpents, poyſon and peſtilence.

Smaradge.

*Plinie maketh 12 ſorts of this ſtone, *lib.* 37. *cap.* 5.

3. The * *Smaradge* is of a green tranſparent colour, making the air green near about it. The qualitie of this ſtone, in phyſick, is much like to the former, or of more virtue: for it is ſaid to defend the wearer from the falling ſickneſſe. And ſo greatly doth it favour chaſtitie, that if it be worn whileſt the man and the woman accompanie themſelves together, it breaketh in the very act.

Hyacinth.

What falſe friends are like unto.

4. The *Hyacinth* is of a watriſh colour, or rather ſomething blew like a violet. It is exceeding hard, and cloudy in the dark, but pure and clear by day: like unto a falſe flattering friend, whoſe blithe looks are onely ſeen in time of proſperitie; but gone when the cloudie night of dark adverſitie beginneth to approch: For where true friends are knit in love, there ſorrows are ſhared

red equally; and beſt are they perceived in a doubtfull matter.

Si fueris felix, multos numerabis amicos:
Tempora ſi fuerint nubila, ſolus eris.
Whil'ſt thou art happy, many friends thou haſt:
But cloudie times thoſe many friends do waſte.

Moreover, this ſtone is of a cold qualitie, moderating the ſpirits of the heart and of the other parts; alſo it cauſeth mirth, and being worn obtaineth favour, as ſome report.

Amethyſt. 5. The *Amethyſt* is a gem or precious ſtone, which in colour reſembleth a deep claret-wine; and (as *ſome ſuppoſe) it hath power to reſiſt drunkenneſſe.

*Ariſtotle affirmeth no leſſe.

Carbuncle. 6. The *Carbuncle* (of which *Plinie* writeth in his 37 book and 7 chapter) is a gem ſhining with a light like fire, repreſenting a flame. Some ſay it is the nobleſt, and hath moſt virtues of any precious ſtone.

Calcedon. 7: The *Calcedon* is of near nature to the *Carbuncle*: it is of a purple colour, and ſhineth like a ſtar: it is ſaid to expell ſadneſſe and fear, by purging and chearing the ſpirits: it alſo hindreth ill and fearfull viſions or dreams in a mans ſleep.

Rubie. 8. The *Rubie* is a red gem, ſhining in dark like a ſpark of fire: it cleareth the ſight, and expelleth ſad and fearfull dreams.

Chryſolite. 9. The *Chryſolite* is a ſtone of a golden colour, and ſhining, but brighteſt in the morning. It is good againſt melancholy; and fire is much hurtfull unto it.

Aſtarite. 10. The *Aſtarite* is a clear ſhining Cryſtalline ſtone, having in the midſt the image of a full moon: or being turned about, the ſunne or the moon may be ſeen ſhining within it. *Plin. lib. 37. cap. 9.*

Selenite. A ſtone which follows the courſe of the Moon.

11. The *Selenite* is a tranſparent gem like glaſſe: it hath a kind of ſpot in it which bears the image of the moon,

moon, increasing and decreasing as the moon; and therefore it is called the *Moon-stone*, *Ibid. cap.* 10. It is of a white, black, and yellow colour: and the scrapings of it heal the falling sickness.

Sardonyx.

12. The *Sardonyx* is a clear gem, in colour representing the nail of a mans hand: it preserveth *chastness, and healeth ulcers about the nails. *Albertus Magnus* witnesseth that if it be hanged about the neck, it doth greatly corroborate the strength of the body.

*The Indians therefore used to hang it about their necks.

Achates.

13. *Achates* is a stone of divers colours, insomuch that the colours of other gems are not sufficient for it: sometime it is black with white veins and yellow: sometime it is as it were sprinkled with bloud; & (like a *Proteus*) is of so many colours that one would scarce believe it were one and the same stone. Eagles (as is said) lay it in their nests to preserve their young from poyson. And *Pyrrhus*, K. of *Epirus*, had one of these gems in a ring, in which were the nine Muses to be seen, and Apollo with his harp; not engraven by art (saith* *Pliny*) *sed sponte natura ità discurrentibus maculis*, but on natures own accord the spots being so disposed. *Plinie* also sheweth the divers kinds of this stone in the 10 chapter of his 37 book, affirming that it is good against poyson, and stinging of scorpions; and is supposed to procure eloquence, and make men wise and fair-spoken. See more in *Scal. Exerc.* 117.

How Fagles keep their young from poyson.

**Plin. lib.* 37. *cap.* 1.

Sardius.

14. *Sardius* is a kind of *Onyx*, of a blackish or deep yellow colour. **Plinie* saith it is a common stone, and was found first about *Sardis*, but the best are near *Babylon*. Some call it a **Corneoll.* It stoppeth bleedings at the nose, sharpens the wit, and makes men cheerfull and merrie, and set in a ring it restraineth anger.

**Ibid. cap.* 7.

**It helpeth to stop fluxes and is good against pyles in the fundament.

Jasper.

15. *Jasper* is a green stone, pointed with spots like drops of bloud.

Topaz.

16. The * *Topaz* is a precious stone whereof there be

**Ibid. cap.* 8.

two kinds; one of gold colour, casting beams in the sun; the other of a saffron colour, not so good as the other. This stone being put into boyling water doth so presently cool it, that one may forthwith pull it out with his hand, and feel no scalding heat: or being laid to a wound it stencheth bloud.

A stone that will suddenly cool seething water.

Emerald.

17. The *Emerald* is a precious stone of a green colour, something like unto the *Smaradge*.

Opall.

18. The *Opall* is a precious stone of divers colours, wherein appeareth the fiery shining of the *Carbuncle*, the purple colour of the *Amethyst*, and the green shew of the *Emerald*, very strangely mixed together.

Turcois.

19. *Turcois* is dark, of a skie colour, and greenish. It helpeth weak eyes and spirits, refresheth the heart; and, if the wearer of it be not well, it changeth colour and looketh pale and dim, but increaseth to his perfectnesse as the wearer recovereth to his health.

A compassionate stone the reason whereof is shewed in *Corrall.*

The sympathizing Turcois true doth tell,
By looking pale the wearer is not well.

Now follow some such as are lesse noble gemmes.

Crystall.

1. *Crystall* is a kind of Ice made of waters which congeal themselves by a vehement and very long cold, as for the space of 10 or 12 continuall years. There is some quantitie thereof found in the Alps, and other cold mountains: and being polished, men make thereof work of divers fashions; as Vessels, Glasses, Mirrours or Looking-glasses, & other common things. His quality is said to be binding; and therefore his powder is helpfull in Laxes, and increaseth milk in womens breasts. Also another kind is sometimes found in the earth; as in some places of Germanie.

Good against Laxes.

Corrall.

2. *Corrall* is a stone growing in the sea like a slimie shrub, which by the aire presently is made hard and turned into a stone. The Greeks call it λιθόδενδρον; which is as much as if you should say, *A stonie shrub.* It is taken

up

up full of moſſe, but being unbarked, it appeareth clear in its proper colour.

The red and branchie *Corrall* cometh ſomething near in nature to the *Turcois*; for when it is worn by thoſe who are ſhortly to fall ſick, it waxeth pale and wan: the reaſon whereof may be, in that his tender ſubſtance is affected by the bad vapour, which is not ſo ſoon perceived in the bodie, becauſe at the firſt it is not ſtrong enough to afflict it. This ſtone, they ſay, is good againſt the falling ſickneſſe, ſore eyes, and the ſtone. Alſo know that there be 3 kinds of *Corrall*; white, black, and red.

How it comes to paſſe that there ſeems to be compaſſion in a ſtone.

3. *Hæmatites*, or the *Bloudſtone*, is a ſtone outwardly of a bloudie colour, inwardly like iron; and of ſuch hardneſſe that the file can ſcarcely bite it. The qualitie of this ſtone is to ſtench bloud, either in a wound, or at the noſe: alſo, it will eat proud fleſh out of a ſore. It is to be found either in Ethiopia or Arabia. *Bloudſtone.*

4. *Magnes*, or the *Loadſtone*, is coloured like iron, but blewer, and tending to a skie colour: it hath virtue not onely to draw iron to it ſelf, but alſo to make any iron on which it is rubbed, to draw iron alſo. It reſpecteth the North and South pole; and loſeth not this ſecret virtue, unleſſe it be rubbed with onions or garlick: which is certainly true, as may be proved by cutting any of the foreſaid roots with a knife touched by the Loadſtone. Some affirm, that phyſically uſed, it purgeth the dropſie, and helpeth the flux. *Loadſtone.*

Alſo, it is ſuppoſed that there are certain magneticall hills or mountains of Loadſtone unto the Artick pole, and they are the cauſes why things touched with this ſtone, tend alwayes that way. But learned * *Scaliger* (as well he might) laugheth at this conceit. Again, others (with better probabilite) are perſwaded that the Loadſtone inclineth towards the ſtarres of the pole by a ſecret ſympathie;

*In his exerciſes againſt Cardan.

ſympathie; even as certain flowers and plants turn themſelves with the ſunne. And for the attractive virtue which it alſo hath in drawing iron, it is ſuppoſed to be alſo by a kind of ſympathy and likeneſſe of ſubſtance; there being two cauſes of attraction: one is *Similitudo*; and the other is *Fuga vacui*. Heat draweth in *Fuga vacui*; and in the ſimilitude of ſubſtance, every part is ſuppoſed to draw its own proper nouriſhment. Whereupon (ſaith * one) ſith iron is as it were the aliment or nouriſhment of the Loadſtone, it therefore draweth iron to it. And, that iron is a kind of nouriſhment to the ſaid ſtone, appeareth in that the filed duſt of iron covering it doth long preſerve it; and in tract of time the duſt will be conſumed; augmenting thereby the accretion of the ſtone. Not that it eateth, or is nouriſhed by it as a thing having life: but even as the elements are moved to their places, as being their end and perfection; ſo it is in the attraction between this ſtone and iron, and the accretion which is cauſed by their reall contaction.

* *Magir. Phyſ.* where by experience he contradicteth *Scalig.*

This I think may be ſuppoſed. But I leave it to the readers further enquirie, and abler examination.

Aſbeſtos. 5. *Aſbeſtos* is a ſtone of an iron colour, which being once fired can hardly be ever quenched. *Plinie* ſaith that it is to be found in the mountains of Arcadia. *Lib.* 37. *cap.* 10.

Dendritis. 6. *Dendritis* is a white precious ſtone, which being put under a tree, keepeth the ax, that cutteth it, from dulling. *Idem, lib.* 37. *cap* 11.

Galactites. 7. *Galactites* is of an aſh-colour; it ſeemeth to ſweat out a kind of liquour like unto milk. * *Plinie* ſaith it increaſeth milk in nurſes, and keeps the mouth of the child moiſt if it be hanged about the neck, &c. ſome alſo ſay that it helpeth running of the eyes, and ulcers.

* *Lib.* 37. *cap.* 10.

Amphitane. 8. *Amphitane* is a precious ſtone of gold colour, ſquare, and of the nature of the Loadſtone almoſt, excepting

cepting that it is ſaid to draw gold unto it. *Plinie* ſaith that this ſtone is alſo called *Chryſocolla*, and is found in a part of India, where the ants caſt up gold from their hills. *Lib.* 37. *cap.* 10.

A ſtone which hath power to draw gold to it.

9. *Androdamas* is a ſtone hard, and heavie; bright like ſilver, and in form like divers little ſquares. It putteth away rage of lecherie: and (as the magicians think, ſaith *Plinie*) it ſtoppeth the force of furie and anger.

Androdamas. *Plin. ibid.*

10. *Panſebaſtos* is a precious ſtone taking away barrenneſſe.

Panſebaſtos.

11. There is alſo in *Plinie*, mention made of the ſtone *Thracius*, which being ſteeped in water burneth and ſprinkles, but it is quenched with oyl.

Lapis Thracius.

12. *Amiantus* is a ſtone like unto alume: this, being put into the fire, is not hurt nor ſlurried, but rather more bright and clear. Unto which, one patient in troubles and adverſities, may be likened: for his afflictions harm him not, but better him; making him look in the middeſt of a fiarie triall, not like one ſlurried with repining, but clear and beautifull in the ſight of heaven, by refining.

Amiantus.

One patient in trouble, what he may be likened unto.

But I conclude; and with him who writeth thus, cannot but ſay,

Oh mickle is the powˈrfull good that lies
In herbs, trees, ſtones, and their true qualities:
For nought ſo vile that on the earth doth live,
But to the earth ſome ſecret good doth give.
And nought ſo rich on either rock or ſhelf,
But, if unknown, lies uſeleſſe to it ſelf.
„Therefore who thus doth make their ſecrets known,
„Doth profit others, and not hurt his own.

Now follow metalls of a more friable and brittle nature. They are more mollified bodies, may be eaſily brought into crumbes or duſt, are called precious earths ſomething clammie, and of a middle nature between ſtones and the leſſe pliable metalls.

Theſe which follow are called metals of a more brittle nature.

Earth of Lemnos.

*In Conſtantinople the Apothecaries and Druggiſts ſell of this earth in cakes, on which are ſtamped certain Arabian characters. On the ſixth of Auguſt it is digged forth at Lemnos with many ceremonies.

First I begin with *Terra * Lemnia*, which is an exceeding red earth of *Lemnos* iſle, digged in a red hill. In old time this had *Diana's* ſeal upon it, printed by her prieſts, who were onely wont to waſh this earth: and now in *Sileſia* and *Haſſia* there is almoſt as good earth found. It is of force to reſiſt poyſon, and to heal old putrified or feſtered wounds.

Vermilion.

2. *Cinoper* is a ſoft red ſtone, found in mines; otherwiſe called *Vermilion*: of which *Plinie* ſpeaketh in his 33 book at the 7 chapter, ſaying, that in times paſt it was not onely of great, but of ſacred eſteem among the Romanes: for they painted their gods with it; as he tells us of Jupiters image, whoſe face was coloured with Vermilion. So *Virgil* alſo, ſpeaking of the ſhepherds god *Pan*, ſaith that he was ſeen,

Eclog. 10.

Sanguineis Ebuli baccis, Minióque rubentem,
With bloudie Walwort berries ſtain'd,
And with Vermilion red.

Neither were their gods alone thus beautified, but their own bodies alſo, in publick feaſts and triumphing ſolemnities; as we reade again in *Plinie*, that *Camillus*, when he triumphed in Rome, was painted with this Vermilion.

Bole Armoniack.

Good againſt the plague.

3. *Bole Armenian*, or *Bole Armoniack*, is of a pale red colour, as eaſie to break as chalk; being of a very binding nature, and of great virtue againſt the plague: and ſeeing it drieth, it profiteth againſt all fluxes.

Oker.

4. *Oker* is a light clayie earth, of a red or yellow colour.

Arſenick.

5. That which the Grecians call *Arſenick*, the Latines call *Auripigmentum*: but I had rather that *Arſenick* ſhould be the generall name, and that it be divided into 3 kinds; namely, into white, red, and yellow *Orpiment*. The white is that which is the common rats-bane. Red *Arſenick* is called *Sandaracha*; of a bright red colour, uſed

uſed of painters, and found in mines of gold and ſilver. Yellow *Orpment* is the right *Auripigmentum*; it is like unto Brimſtone. This (if it be our common *Arſenick*) is a very dangerous drug: for it is hot and burning, ſo as it gnaweth the ſtomach, and pierceth the bowels, producing a fever with an intolerable and an unquenchable thirſt.

Red lead.

6. *Red lead* comes ſomething near to the nature of Vermilion: and (as* *Plinie* writeth out of *Homer*) was uſed by the Trojans, and honoured before they knew Vermilion. For (as *Theophraſtus* in *Plinie* witneſſeth) *Callias* of Athens firſt found out Vermilion, thinking indeed to draw gold out of it. Howbeit, *Red lead* is no minerall, but made artificially.

* *Plin. lib. 33. cap. 7.*

Earth of Samos.

7. *Terra Samia* is a white, ſtiffe, and tough earth coming from the iſle *Samos*. *Plinie* makes two kinds of it: the one more glutinous then the other; the other more cloddie, leſſe glutinous, and whiter. He ſaith there be thoſe who preferre the firſt as beſt. They are either of them good againſt ſpitting of bloud. *Lib 35. cap. 16.*

Good againſt ſpitting of blood.

Chalk.

8. *Chalk* is a white earth, which was firſt found in *Creet*, and therefore in Latine it is called *Creta*: But now we find of it in many other places. *Plinie* makes many kinds of *Chalk*; all which are not white: as in his 34 book at the 17 chapter is apparent; *Fullers earth* being a chief kind among them: and that, by others, is called *Creta Taſconia*. *Brown Umber* cometh alſo near to the nature of the ſaid earth.

Fullers earth.

Brown Umber.

Calx is *Lime-Chalk*, which after it is burnt will be fired with water, but quenched with oyl: as Authours write. It is called *Calx viva*, becauſe it contains a kind of hid fire in it.

Lime-Chalk.

10. *Ampelite* is a pitchie earth cleaving and black; being much like to that which we call Pit or Sea-coal, as ſome imagine: and (haply) the diverſitie of climate cauſeth

Black earth like our coals.

ſeth the difference. There is alſo found another earth, which * *Plinie* calls *Pignitis*, and ſome others *Pnigitis*, and it is as black as this.

*Lib. 35. cap. 16.

Bitumen.

11. *Bitumen* is a fat and tough moiſture, like Pitch; and is called *Earthy Pitch.* Or thus: It is a kind of clay or naturall Lime, clammie like Pitch; and is to be found in many countreys of Aſia. They who builded the tower of Babel, uſed this in ſtead of Morter, as appeareth in Gen. chapter the 11. And ſo did others alſo in old time, making it in like manner burn in lamps in ſtead of oyl.

Two kinds of Bitumen.

This pitchie earth is of two kinds: For it is either Hard, or Liquid.

Hard Bitumen.

The Hard is more ſtrongly concreted then the other; being like unto clods of the earth, or coals. Or (as ſome affirm) it is tough and moiſt at the firſt, ſwimming on the water, but being taken forth it waxeth hard. Of this kind is 1 *Aſphaltus*, 2 *Piſſaſphaltus*, 3 *Succinum.*

Three kinds of hard Bitumen.

Aſphaltus.

Aſphaltus is a black *Bitumen*, hard like ſtone-pitch, clear, and ſmelling ſcarce ſo ill as Pitch. It is found throughout Babylon, and eſpecially in the lake *Aſphaltites*; near unto which ſtood thoſe cities of Sodome and Gomorrah, that were conſumed with fire and brimſtone: and where alſo do as yet grow apples, which (according to *Solinus*) are fair and freſh without, but within are full of Sulphur; and being handled they fall all to aſhes: In which they are Emblemes of the vanities of this world, alwayes ſeeming more then they are.

Worldly vanities like to Sodome apples.

Piſſaſphaltus.

Mummie.

Piſſaſphaltus is ſaid to be *Mummie*, or a kind of *Bitumen* ſomewhat *differing from *Aſphaltus*, and is not ſeldome found in clods rolling from mount *Ceravine* to the Sea; as Authours witneſſe. In ſtead of this, it is ſuppoſed that we have counterfeit *Mummie* often out of Syria,

*As having more pitch in it according to *Plin. lib.* 35. *cap.* 15.

Syria, Egypt and ſome other places, which is taken from poore mens bodies that die there : For in ſtead of Myrrhe, Aloes, Caſſia, &c. (which the rich men have in their burialls and embalmings) the poore are dreſſed and ſtuffed up with *Bitumen*. This therefore which is but counterfeit, is nothing elſe but a corrupted humour taken out of old tombes, which there droppeth from embalmed bodies: and moſt ridiculouſly (in my opinion) do they erre who ſay it is made of mans fleſh boyled in Pitch. It is hot in the ſecond degree, and good againſt all bruiſings, ſpitting of bloud, and divers other diſeaſes.

Poore folk are glad of any thing.

Good againſt bruiſes, &c.

Succinum is a Bituminous ſuck or juice of the earth, being hard as if it were a kind of ſtone. It is of three colours ; White, Yellow, and Black. The White and Yelloware called *Amber* : and the Black is *Jet*.

Succinum.

Amber.

Jet.

They make beads of *Amber*. And ſome would have this *Amber* to be rather a gũme growing on a tree, then to be a ſuck of the earth. The tree, by ſome, is called *Ibex Romana*. But (as others report out of *Dioſcorides*) it falleth in manner of a liquour from Poplar trees into the river *Po* in Italie, where it congealeth and becometh hard, in that form as we ſee it.

Jet hath more plentie of fatneſſe in it then *Amber*; and therefore it will burn like a candle, and ſmelleth like the Pine-tree. It hath an attractive virtue in it to draw chaffe, ſtraws, and ſuch other light ſtuff unto it, eſpecially if it be rubbed till it be hot. And theſe are the kinds of Hard *Bitumen*.

The liquid and ſoft, is like an oyly moiſture flowing, and is of divers colours according to the varietie of the place : but the white is ſaid to be moſt precious. And for the kinds, the chief are theſe ; *Naphtha*, and *Amber of Arabia*.

Soft Bitumen, and his kinds.

Naphtha, is a liquid Bitume like unto chalkie clay, or (as it were) the fat of Bitume ; whereunto if fire

Naphtha.

Water cannot quench this liquour.

fire be put, it kindleth in ſuch wiſe, that if a little water be caſt thereon, it burneth more vehemently: And indeed it hath in it ſuch a fiery force, that it will draw fire unto it, although it be farre off. When it is found to flow out of rocks, then it is called *Naphtha Petreolum*; and by ſome, taken for oyl. In the iſland Sicilie are fountains, from whence great ſtore of this liquour floweth, which they frequently burn in Lamps.

Amber of Arabia.

Amber of Arabia, is *Bitume* of an aſh colour, and of a fragrant ſweet ſmell, deſired and ſought after as a moſt precious merchandiſe. It is found in *Arabia felix*, near unto a town which is called *Sichris*. Howbeit *Olaus Magnus* calleth that *Amber*, which is *Sperma Ceti*: but then it is *Ambergreeſe*, and rather the ſpawn then the ſeed.

Alume.

12. From *Bitume*, I come to *Alume*: which is ſaid to be a ſalt ſweat of the earth, according to * *Plinie*; congealing it ſelf with a glutinous earth and water.

*Lib. 35. cap. 15.

It is either white or black.

The white is either clear or thick.

Roch-Alume.

The clear is ſofter and fatter then the other: This is *Roch-Alume*; and if paper be waſhed with this, it will bear ink very well, although it be bad.

Harder Alume.

The thick is more hard, and of a grayer colour. Black *Alume* is found in *Cyprus*: and with this, gold is purified and purged. They that deſire more, may reade *Plinie* in his 35 book at the 15 chapter.

Black Alume.

Vitriol.

13. *Vitriol* is a ſuck of the earth concreted, obtaining the perſpicuitie of glaſſe: ſome call it *Chalcanthum*, which word may ſignifie either *Copperas* or *Vitriol*. This ſuck is very poyſonous.

Salt.

14. *Salt* is called *Sal, à ſaliendo*; becauſe when it is put into the fire, it skippeth and danceth. It is a friable metall, begotten of a wateriſh and earthie moiſture, mixt and decocted together: the efficient cauſe whereof

whereof is the heat of the ſunne and other ſtarres; who, out of a ſalt matter, drawing away the thinner and the ſweeter parts, leave the earthie ſtill behind, which being throughly roſted by heat, become ſalt. For there be two things requiſite in a ſalt ſavour: The firſt, are drie and earthie parts; The other, is an aduſtion of the ſaid parts, as Philoſophers witneſſe. Salt hath force to bind, to ſcowre and purge, to diſperſe, make thin, and the like: which thing Phyſicians can beſt declare.

There be 2 kinds; Naturall and Artificiall. The Naturall, is digged Salt. The Artificiall, is made or boiled Salt. *Salt is either Naturall, or Artificiall.*

Digged Salts are gotten either from the earth, or from the waters; as ſome diſtinguiſh.

Salts digged out of the earth, be principally of foure kinds.

The firſt is *Salt Ammoniack*. This is found in Africa under ſand, and is ſomething like unto alume. It is ſaid to be hot and drie in the fourth degree, and ſerveth to purge ſlimie humours. Some affirm that that which Apothecaries ſell in black clods, is made of Camels ſtale; and becauſe ſtore of Camels be in Armenia, it is called *Armeniack*. *Salt Ammoniack.*

The ſecond is *Salt of Indie*, of which you may reade in *Plinie, lib.* 31. *cap.* 7. that it is digged out of mount *Oromene*; and that the King hath there a greater yearely penſion or cuſtome, then out of gold and precious ſtones. *Salt of Indie.*

The third is called *Salt-gem*, which is a kind of glittering Salt; white, and ſhining after the manner of Cryſtall. Sometimes it is alſo called ſtonie, marblie Salt; Salt *Dacian*, or *Sarmatick* Salt. *Salt-gem.*

The fourth is called *Salt-nitre*: and this is that which we call *Salt-peter*, found in drie places under ground, and in hollow rocks. *Salt-Peter.*

Of

Gunne powder and gunnes how invented, and when.

Of this is made that fatall duſt, called *Pulvis Bombardicus*, or *Gunne-powder*: the invention whereof was after this manner. A Germane Monk or Frier, of the order of S. *Francis*, whoſe name was *Bertholdus Swart*, being very ſtudious in Alchymie, was one evening (for the finding out of ſome * experiment) very buſie in tempering brimſtone, ſulphureous powder of dried earth, and certain other ingredients, in a mortar, which he covered with a ſtone: and growing dark, he took a tinderbox to light him a candle; into which whileſt he aſſayed to ſtrike ſome fire, a ſpark by chance flew into the mortar, where catching hold of the brimſtone and ſalt-peter, it fired with a ſudden flaſh, and violently blew up the ſtone. The cunning Chymiſt gueſſing which of his ingredients it was that produced this effect, never left till he found it out: then taking an iron pipe he crammed it full of the ſaid ingredient, together with ſome ſtones; and putting fire to it, he ſavv that vvith great furie and noiſe it diſcharged it ſelf. Soon after, he communicated this his invention to the *Venetians*, who having been often vanquiſhed by the *Genowaies*, did, by help of theſe bombards or gunnes, give them a notable diſcomfiture: which was in the yeare of our Lord 1380, as *Bucholcerus* writeth in his chronologie, ſaying, *Hoc tempore BOMBARDÆ ad hominum perniciem inventæ ſunt & excogitatæ à Bertholdo Nigro Chymiſta & (ut quidã volunt) Monacho Germano.* Wherein we ſee that he calls them bombards invented for the ruine of men. For by theſe (ſaith he) it comes to paſſe, that now (in a manner) all the force of the footmen, all the ſplendour of the horſe, and all right warlike power, doth ſhamefully ceaſe, lie dead, faint, and dull. *Polydore* alſo ſaith, that of all other inſtruments which ever were deviſed to the deſtruction of man, the gunnes be moſt deviliſh. In which regard (ſith he was not well inſtructed concerning

* *Polydore Virgil* ſaith he was making a medicine. *Lib. 2. cap. 7. de invent.*

Polyd. Virg. lib. 11 anna.

cerning the Almains name that invented them) he addeth yet thus much more, saying, *For the invention he received this benefit, that his name was never known, lest he might for this abominable device be cursed, & evil spoken of as long as the world remaineth.* And in the continuation of *Carions* chronicle, by * *Caspar Peucer*, it is also said, that about the beginning of *Wenceslaus* his reigne *That raging kind of engine & tormenting torture (which from the sound we call a * bombard) was found out by a Monk, the devil being the chiefest enginer or master-workman. For it was their care, that seeing the authority of idle superstitions should decline & fade by little & little, (which through these authours had bewitched the minds of mortalls, and cast them into eternall destruction) this might therefore succeed by them, the same authours, as another kind of mischief, which should rage against their bodies, as that other had done against their souls.* To this purpose *Peucer*. And indeed an experiment of his speech we then beheld, when the upholders of that tottering kingdome would have traiterously tried to have * sent at once, even all the Peers of this our land piece-meal into the aire. But *he that keepeth Israel shall neither slumber nor sleep. The Lord himself was our keeper*, so that their sulphureous fire could neither burn us by day, nor scare us by night: although *Faux* were taken the night before, among the barrells, and wished that then (sith he had done so much, and could do no more) his match with fire had toucht the powder.

* Lib. 5. pag. 817.

*Bombarda vocatur à bombo, id est, sonitu, qui βόμβος Græce dicitur. Buch. in chronol.

* In the powder treason, Anno Dom. 1605.

Oh never let the mem'rie of that day
Flie from our hearts, or dully slide away.
God thought on us, that we remembring this,
Might think on him whose hand defendeth his.

But whither am I transported now? These foure, although they be the principall kinds of salt digged from the ground, yet there be other also: amongst which, these

Salt of Spain.

thoſe Spaniſh mountains would be remembred, where there is a ſalt cut out, and drawn as ſtones are out of a quarrie; in which place it afterwards increaſeth, and filleth up the gap with more ſalt again. *Du Bartas* calls this the brine-quar-hill in Atragon.

Salt not digged from under ground.

And as for Salt digged out of waters or watrie places or not digged from under ground, it is thus cauſed; namely, by the heat of the ſunne percocting thoſe waters vvhich are extreamly ſalt. For when ſalt waters are throughly concocted by the ſunne, they are ſo dried, congealed, and thickened, that in their ſhores, by their banks, and often upon their very ſurfaces or ſuperficies, they render liberally good ſtore of Salt. Thus in the ſummer time is the Tarentine lake (of which *Plinie* ſpeaketh) turned into ſalt: the ſalt being in the ſurface of the waters, to the depth of a mans knee. So alſo in Sicilie, in the lake *Coranicus*. And in ſome rivers, the water is knovvn to runne underneath in its ordinary courſe, vvhileſt the uppermoſt part is turned into ſalt: as about the Caſpian * ſtraits, which are called the rivers of ſalt; and alſo near the *Mardi* and *Armenians*, whoſe countreys are in Aſia.

Plin. lib. 31. cap. 7.

*They are ſtraits about the Caſpian ſea, ſcarce the breadth of a wain.

Boiled Salt.

But leaving theſe, I come to the ſecond kind of Salt, which is artificiall and made, or boiled ſalt. For although the matter be naturall, yet the making is by art. From whence it comes to paſſe, that of one and the ſame ſalt water, this man will boil better Salt then that man; and he then another. Yea, ſome, out of water leſſe ſalt, will boil and make better Salt, then others out of fountains more ſalt.

Many be the places where they make Salt after this manner, by boiling of ſalt water: neither is this kingdome of ours deſtitute of ſuch fountains or wells. For at the towns called the *Witches* in Cheſhire, there is a brinie water, which by boiling is turned into white Salt.

And

And the ſame water is ſaid to be as good to powder any kind of fleſh, as brine: for within 24 houres it will powder beef ſufficiently. A great bleſſing of God to raiſe up ſuch ſprings for our uſe ſo farre within the land: as alſo an evident argument, that the Sea is made ſalt by the ſubſtance of the ground; of which I have ſpoken my mind already.

Salts neceſſitie.

And here unto all this, I could adde the neceſſitie of Salt; which is ſuch, that we cannot well live without it, and therefore it is the firſt thing that is ſet on the table and ought to be the laſt taken away; according as one tranſlateth out of *Schola Salerni*, ſaying,

Salt ſhould be laſt remov'd, and firſt ſet down
At table of a Knight, or countrey clown.

This, I confeſſe (as pertinent) might be added; but it is now high time to put a period to the diſcourſe of this dayes work. Take the reſt therefore, all in one word; and then it is thus,

The eve and morn conclude the third of dayes,
And God gives to his work deſerved praiſe.

CHAP. VII.

Concerning the fourth day; together with ſuch things as are pertinent to the work done in it.

Sect. 1.

Being as it were a kind of entrance into this dayes work, which treateth of the ſtarres and lights.

THe ſtructure of the earth being adorned with herbs, trees, and plants, in the third or former day; Moſes now returns to ſhew both how & when God beautified the heavens; bedecking that vaulted roof with ſhining lights and beauteous ſtarres: which like glittering ſaphires, or golden ſpangles in a well wrought canopie, do ſhew the admired work of the worlds brave palace.

And ſeeing this was not done before the ſprouting of the earth, it may well be granted that they are but fooliſh naturaliſts who will preſume to bind Gods mighty hand in natures bands, and tie him ſo to ſecond cauſes, as if he were no free or voluntarie agent, but muſt be alwayes bound to work by means.

And again, the Text declareth that the ſun, moon, and ſtarres, were all unmade before this preſent day: and yet it ſaith there was light before. But it was then a diſperſed ſhining, and now united to theſe bright lamps of heaven: that that riding, and they running like fierie chariots, might

might not onely rule the day and night, but alſo diſtinguiſh the better, and more harmoniouſly, the dayes from nights, ſeaſons, weeks, moneths, and years; and not onely ſo, but be alſo for ſignes of ſomething elſe.

Alſo, *God made them*, ſaith the Text. See then the folly of thoſe who make them gods, and vainly do adore them. For let it be obſerved, that although the ſunne and moon be called the greateſt lights, yet if they be worſhipped, they are abuſed to the greateſt darkneſſe; and they that deifie them, may damnifie themſelves by being as blind as the heathen Gentiles, and as ſuperſtitiouſly addicted as ſome (of old) amongſt the Jews; whoſe anſwer to the Prophet Jeremie was, that they would not do according to his teaching, but follow rather the deſperate bent of their own bows, in worſhipping the moon as Queen of heaven. *As for the word that thou haſt ſpoken to us in the name of the Lord, we will not hearken unto thee. But we will certainly do whatſoever thing goeth forth out of our own mouth to burn incenſe to the Queen of heaven, and to poure out drinkofferings unto her, as we have done, we and our fathers, our kings and our princes, in the cities of Judah, and in the ſtreets of Jeruſalem.* Of which they give this reaſon: *For then* (ſay they) *we had plentie of victualls, and were well, and ſaw no evil*, Jer. 44. 16, 17. By which laſt words it well appeareth, that it was fear as much as any thing elſe, which made them thus advance this practiſe. And truly fear is an effect proceeding from the nature of ſuperſtition, and ſo farre prevailing, that it will there make gods where it doubted moſt of danger: as the Egyptians did, in making Fortune a goddeſſe. For they kept an annuall feaſt in honour of her deitie; giving thanks for the yeare which was paſt, and earneſtly imploring her favour for the yeare to come. It was *Plutarchs* obſervation, that the ſuperſtitious alwayes think the gods

* The moon, as in Job, chap. 31. 26.

readie to do hurt. By means whereof he accounteth them in worſe caſe then malefactours or fugitives, who if they once recover the Altar, are there ſecured from fear, where nevertheleſſe the ſuperſtitious are in greateſt thraldome: And from hence aroſe that ancient ſaying, *Primus in orbe deos fecit timor:* And hence it alſo was that the heathen, in inſtitution of their ſacrifices, did offer as well to all their gods that they ſhould not hurt them, as for any help they expected from them. An example whereof we have again among the poore ſilly Indians, who ſacrifice their children unto the devil at this very day, becauſe they be mainly afraid of him. And of old (as it is ſtoried) we have the example of *Alexander Magnus*, who ſacrificed to the ſunne, moon, and earth, that thereby he might divert the evil luck, which (as he feared) was portended by an Eclipſe but a little before. And the Jews did not onely burn incenſe to the Queen of heaven, but offer up cakes unto her alſo, as in Jer. 7. 18. From which kind of idolatrie Job did thus acquit himſelf, ſaying, *If I have beheld the ſun when it ſhined, or the moon when it walked in brightneſſe: or if my heart hath ſecretly enticed my mouth to kiſſe my hand unto it, or by way of worſhipping it: then this were iniquitie that ought to be puniſhed*, chap. 31. verſe 26. It ought indeed to be puniſhed, becauſe God Almightie had forbidden it; as in Deut. 4. 19. *Beware leſt thou lift up thine eyes to heaven, and when thou ſeeſt the ſunne, and the moon, & the ſtars, even all the hoſt of heaven, ſhouldeſt be driven to worſhip & ſerve them, which the* LORD *thy God hath divided unto all nations under the whole heaven.* And in Jerem. chap. 10. verſ. 2. *Learn not the way of the heathen, & be not diſmaid at the ſignes of heaven: for the heathen are diſmaid at them*: Which is, as if it ſhould be ſaid, The way of the heathen is to worſhip their gods with a ſervile fear, and attribute divine honour

nour to the creature. But you which are my people, do not you ſo: for God willeth not that the works of his hands ſhould be worſhipped. Or thus; He there teacheth them to have their truſt ſo firmly fixed on him, that what diſaſter ſoever the heavens in the courſe of nature ſhould threaten unto them, they ought not to fear it. For, *Aſtra regunt homines, ſed Deus aſtra regit.*

And again, Moſes in the text calls the ſunne and moon two great lights: the greateſt of which (even the ſunne it ſelf) ſeemeth to our eyes but little, and yet by rules of art is found * farre greater then the earth; that thereby we may learn not to truſt our ſenſes too much in heavenly things.

* Greater then any ſtarre, and bigger then the earth 140 times, according to *Tycho*.

Laſt of all, let me prevent a queſtion. The moon is leſſe then any ſtarre: for *Tycho* makes Mercury but 19 times leſſe then the earth; whereas the moon is leſſe by 42 times: how then can the moon be called a great light, ſeeing her bodie is no bigger? Take this *anſwer; The ſunne and moon are called great lights, partly from their nature & effects; becauſe they give more light then other ſtarres. The ſunne appeareth alone in the day, not becauſe he is alone, but becauſe through his exceeding brightneſſe the other ſtarres cannot be ſeen. The moon alſo in her brightneſſe obſcureth many ſtarres; and being more beautifull then any other, hath worthily the chief preheminence in ruling the night, as the Scripture ſpeaketh. Or thus, They be called great lights (ſay ſome) according to the cuſtome of the Scripture, ſpeaking according to the capacitie of the ſimple: for in outward appearance they are the greateſt. And yet as great as the greateſt is, if one ſhould go about to perſwade the vulgar that the earth is of a farre leſſe circuit, they would ſcarce believe it; making the ſun ne of the bigneſſe of ſome wheel, and the moon as much in compaſſe as the breadth of a buſhel: howbeit * S. *Ambroſe* gives ſenſible

*Or this; *Dicuntur duo luminaria magna, non tam quantitate quàm efficaciâ & virtute. Quia etſi alia ſtellæ ſint majores quantitate, quàm lumen tamen effectu lunæ magis ſentitur in iſtis inferioribus, & etiam ſecundùm ſenſum major apparet*, Aquin. ex Chryſ. Hom. 6.

*In his Hexæmer.

ſenſible and apparent reaſons of greatneſſe in the ſunne and moon, even by daily experience. For firſt, they appear of like quantitie to all the world, whereas herds of cattell being eſpied farre off ſeem as ants, and a ſhip diſcerned farre in the ſeas, ſeemeth no bigger then a flying dove. They ſhew of the ſame greatneſſe in *India*, and in *England*. They enlighten all parts of the earth alike, and appear the ſame indifferently to all; and therefore muſt needs be of an extraordinary bigneſſe. And ſecondly, as ſoon as the ſunne ariſeth, all the ſtarres are hid; which ſhews his greatneſſe. And further, if the ſunne were not of ſuch greatneſſe as Artiſts give unto it, how could all the world be enlightned by it?

Sect. 2.

Of the Matter, Place, and Motion of the Starres with other like things which are alſo pertinent.

Artic. 1.

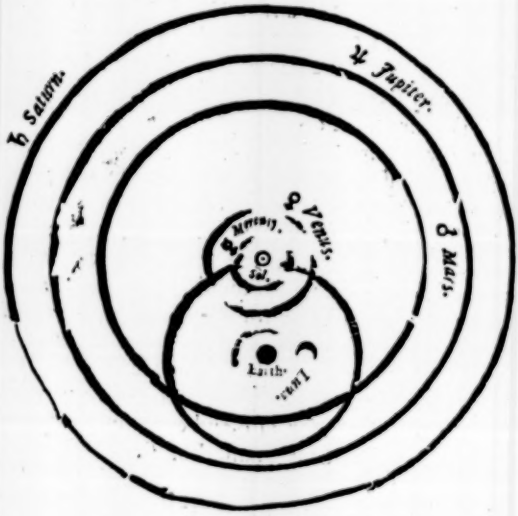
That they conſiſt moſt of a fierie matter, and are cheriſhed by the waters above the heavens.

BY *Heaven* and *Earth*, which Moſes ſaith were created in the beginning, we are to underſtand all and every part of the whole Univerſe: whoſe matter was created at once, and made as it were the ſtorehouſe for all things elſe; as already in the firſt dayes work I have declared. Howbeit ſome contend, that the ſtarres and lights of heaven were not made out of any matter either of the earth, or the waters, or of heaven, or any thing beſide; but immediately out of nothing. Which certainly is ſcarce agreeable to the whole ſcope of creation: For, in the beginning, the matter of all was made. And perhaps, as it was proper to the earth

earth to bring forth herbs, graſſe, and trees, at the command of God in the third dayes work; ſo alſo (perhaps) it was as proper to the heavens, in ſome ſort, to afford the matter of the luminaries and other ſtarres, as ſoon as God ſaid, *Let there be lights in the firmament of heaven.* And herein thoſe Philoſophers were not much amiſſe, who defined the ſtarres to be the thicker part of their orbs. Yet nevertheleſſe not ſo to be followed, as if the heavens afforded any ſolid orbs; unto which, as the knots in a tree, or the nails in a wheel, or the gemme in a ring, the ſtarres are joyned. For beſides that which I have alreadie ſpoken of the whole ſpace within the concavitie of the firmament, *viz.* that it is but aire; yet purer and purer the higher we climbe: which I proved in the ſecond day, both by opticall demonſtration, height, conſumption, and motion of Comets, with the like; beſides that (I ſay) there be other reaſons alſo to declare it. For not onely certain Poets have confeſſed as much, calling the skie *Spirabile cœli numẽ*, as we read in *Virgil*; or a *Liquid heaven*, as *Ovid* tells us, ſaying, *Et liquidum ſpiſſo ſecrevit ab aere cœlũ:* nor yet is it confirmed by the teſtimonie of *Pliny* alone, who followed herein the opinion of ancient Philoſophers; but even reaſon alſo, and exquiſite modern obſervations have made it plain. For ſuppoſe there were ſolid orbs, or that this concave were not filled with liquid aire, would it not follow that there ſhould be as it were *penetratio corporum*, or that one Sphere ſhould cut another in ſunder? Queſtionleſſe it would. For the Planets move ſo up and down that they often enterfere and cut one anothers orbs, now higher, and then lower; as *Mars* amongſt the reſt, which ſometimes (as* *Kepler* confirms by his own and *Tycho's* accurate obſervations) comes nearer the earth then the Sunne, and is again eſtſoons aloft in *Jupiters* ſphere. And doth not *Tycho's*

* *Epit. Aſtron. lib. 4.*

Hypotheſis and *Syſtema* of the world make it alſo plain, that the ſphere of the Sunne muſt be interſected by the orbs of *Venus*, *Mars*, and *Mercury*? which could not be if the heavens were impenetrable, or differed *toto genere* from this ſoft aire wherein we live and move. And now ſee this figure, framed according to *Tycho's* demonſtration.



Thus *Tycho* deſcribeth the wayes and ſituations of the Planets. The ſtarres therefore move in the heavens as birds in the aire, or fiſhes in the ſea, and the like: yet ſo, as their bounds are ſet; which with great regularitie, to the admiration of their Maker, they conſtantly come unto, & depart away from, in their appointed times and determined orders; and therefore ſaid to be ſet in the firma-

ment

ment of heaven, verſ. 17. thoſe of the fixed ones being as equally diſtant one from another, now, and at this very day, as at the firſt, when God Almightie made them: and thoſe of the wandring ones as conſtant in their courſes, as ever yet from the firſt time they began to move. Whereupon ſaith *Tycho*, *Semper judicavi naturalem motûs ſcientiam, ſingulis Planetis congenitam, vel potiùs à Deo inditã eſſe, quâ in liquidiſſimo & tenuiſſimo æthere curſûs ſui normam regulariſſimè & conſtantiſſimè obſervare coguntur.* Yet nevertheleſſe we may not think that therefore they are living creatures, animated with a ſoul, and endued with life and reaſon; but rather, and in very deed (as even now I ſaid) let this be an argument to ſhew and declare the admired wiſdome of their Maker: according to that of David in the 19 Pſalme, *Cœli enarrant gloriam Dei, The heavens declare the glorie of God, & the firmament ſheweth his handie work.* For, *The ſunne comes forth as a bridegroom out of his chamber, & rejoyceth as a giant to runne his courſe.* And yet again it is a thing very probable, that thoſe amongſt the Jews who made cakes for the Queen of heaven, who burnt incenſe to the Sunne, Moon, Planets, and hoſt of heaven, who dedicated horſes and chariots to the Sunne, did not onely do it becauſe they worſhipped them as gods, but alſo becauſe (like * ſome amongſt the Philoſophers, and others amongſt the * Fathers) they thought them to be living creatures. Sure we are that Moſes puts them not into his catalogue amongſt ſuch creatures as he reckoneth to have life: and therefore who will ſay they live?

Tych. in Epiſt. ad Rothmannum.

* *Plato in Timæo*, with other his followers. See alſo *Cic. de natur. Deor. lib. 2.* * *Origen* and his followers.

They may move, and yet be inanimate; as fire, which is of power to move, waſte and conſume: aire incloſed is able to ſhake the earth: water carrieth ſhips, boats, and barges; flows this way, and that way, yet is no living creature, hath no ſoul, mind, or reaſon.

Alſo, it may be granted that they are daily nouriſhed

by vapourie humours, and are (as it were) fed by ſuch kind of food ; yet no living creatures. For no man will denie a tranſmutation of the elements , but rather eaſily grant that they one nouriſh another for conſervation of the Univerſe : And in ſuch a kind, or not farre differing, it is that the ſtars may be nouriſhed by waterie humours, and have their beams made wholeſome to the world, although they be no living creatures. All which may be ſeen more largely proved in *Lydiats Prælectio Aſtronomica* : where having diſcourſed of the matter of the heavens and ſtarres, as alſo of the portions and tranſmutation of the elements , he proveth that there is ſuch a penurie of water here below, that it cannot be ſupplied (*ad mundi, non dicit æternitatẽ, ſed diuturnitatẽ, propter inæquales elementorum tranſmutationes*) not ſupplied without the conſumption of the aire, were not the waters divided. The one part whereof is *circa mundi medium* ; from whence may be had in readineſſe alwayes that which is ſufficient to water and fructifie the earth, and leave a place for habitation. The other *circa mundi extremum* , as in a great treaſure and plentifull ſtorehouſe, from whence (*per mediam aeris naturam*) both the ſtarres are cheriſhed, their beams made wholeſome to the world, and alſo the expenſe of theſe lower waters ſalved in what is needfull : for the earth, as a bad debter , either ſends back none, or little of that which it borrowed, not being eaſily turned into any other element. From whence (ſaith he) we may anſwer that queſtion amongſt the ancient Ethnick Philoſophers, mentioned by *Plutarch*, πόθεν τρέφεται ὁ κόσμος, *Unde nutriatur mundus.*

cap. 4. & cap. 5.

And indeed for mine own part I alſo think, that the ſtarres are of ſuch a nature or ſubſtance, that (in their kind) they ſtand in need of daily ſuſtentation , like a lamp which can burn no longer then the oyl laſteth which

which ever feeds it. For the heavens are ſubject to change and alteration; neither is there any neceſſity compelling us to attribute a quinteſſence to either of them (eſpecially ſeeing we are certain that the world is not eternall) but that we may as well and as probably grant them to be of the ſame nature with the elements; as formerly I have related. Which being granted, I ſuppoſe them to be chiefly of a fierie nature: and this (perhaps) they took from the * higheſt part of the aire, in the ſupream height of heaven, which reacheth to the utmoſt extent of the out-ſpread firmament: For there is that which we call the Elementarie fire; there, I ſay, and not in a lower place: although *Ariſtotle* would have it *in concavo lunæ*, or next under the orb of the moon; of which ſee more in the ſecond dayes work.

* Or, *A luce primæva*, which was made in the firſt day: in which ſee more.

And herein I do willingly alſo embrace the opinion of *Plato*, that the ſtarres for the moſt part are fierie: yet ſo, as they in ſome ſort participate alſo of the other elements; that thereby their bodies may be (as it were) glewed together, and firmly concreted into a durable lump: differing no otherwiſe from a Comet then ice doth from cryſtall, or a clear ſolid gemme from bright brittle glaſſe. An experiment whereof we have in that new ſtarre of *Caſſiopea's* chair; which, becauſe it was of a more ſolid compoſition then ordinarie comets, and of a neareſt nature to the matter of the continuing ſtarres did therefore appear like one of them, & laſted a long while with them before it was extinguiſhed: for had it not been exalted to a great perfection and ſolid compoſition of the parts, it had been gone, extinct, and vaniſhed, a long while ſooner. And in granting to them ſomething of every element (although their greateſt portion, eſpecially in the ſunne, be fierie) it comes to paſſe that they have differing qualities: of which ſee more afterwards in the Aſtrologicall part of this dayes work. Neither ſhall

ſhall I need to ſtand upon it as a thing neceſſary for me to prove, whether they make warm the aire and us by any heat which is formally in them, or by the attrition made with their beams. Onely know, that it is hotter in ſummer then in winter, becauſe when the beams of the ſunne come neareſt to a perpendicular trajection, their heat is the greater, becauſe their reflection is the ſtronger.

But leaving this, give me leave to proceed, and to proſecute more fully the matter in hand, that thereby I may ſhew my meaning now more clearly concerning the daily nouriſhment of theſe bright heavenly lamps. For (as hath been ſaid) ſeeing their chiefeſt matter is of that nature of vvhich it appeareth to be, they muſt of neceſſitie be nouriſhed out of ſome ſtore-houſe or other; othervviſe the vvorld comes to decay, *& impavidum ferient ruinæ*, and the very ruines vvill ſtrike him vvho fears it not. For ſatisfaction therefore in this, it cannot be amiſſe to remember the opinion amongſt ſundry of the ancient Philoſophers, vvho ſaid the truth, and yet erred in declaring it: as *Cleanthes*, vvho allovved the matter of the ſunne to be fierie, and that it vvas nouriſhed by humours attracted from the ocean. Alſo *Anaximander* and *Diogenes*, after whom *Epicurus*, and the Stoicks, thought in like manner that the ſunne vvas nouriſhed by vvaters: and leſt it ſhould periſh through any defect of aliment, they fondly ſuppoſed that the oblique motion which it had from one Tropick to another, vvas to find out moiſt humours, that thereby it might live perpetually. Novv theſe things very vvorthily vvere held by *Ariſtotle* to be ridiculous and abſurd; as in the ſecond book of his Meteors, at the ſecond chapter, is apparent. Yet nevertheleſſe ſucceeding times did in a manner pitch ſtill upon the ſame tenets, and vvould not onely have the ſunne and reſt of the Planets, but even all the other ſtarres nouriſhed by vapours and watrie humours, as vvell

well as they. For amongſt others, it was *Cicero's* opinion in his ſecond book *De natura deorum*; making the ſea, and waters of the earth, their daily ſtore-houſe. See alſo *Seneca* in his 6 book and 16 chapter of Naturall queſtions; and *Plutarch in libello de Iſide*; and *Plinie* in his Naturall hiſtorie, *lib.* 2. *cap.* 9. whoſe words are theſe, *Sydera verò haud dubiè humore terreno paſci, &c.* Theſe indeed ſpake the truth, but (as I ſaid before) they erred in declaring it. For it is nothing probable, neither may it be granted, that all the ſeas, or waters in the world, are able to afford moiſture enough for ſuch a purpoſe.

Du Bart.

And therefore ſmile I at thoſe fable-forgers,
Whoſe buſie-idle ſtyle ſo ſtiffly urges
The heav'ns bright Saphires to be living creatures
Ranging for food, and hungry fodder-eaters;
Still ſucking up (in their eternall motion)
The earth for meat, and for their drink the ocean.
Nor can I ſee how th' earth and ſea ſhould feed
So many ſtarres, whoſe greatneſſe doth exceed
So many times (if ſtarre-divines ſay troth)
The greatneſſe of the earth and ocean both:
For here our cattell in a moneth will eat
Sev'n times the bulk of their own bulk in meat.

Wherefore be pleaſed to call to mind what was formerly mentioned in the ſecond day, concerning the waters above the heavens, ſet apart from theſe below by the out-ſpread Firmament: but how it is that there they are, and that the out-ſpread Firmament is able to uphold them, let the alledged reaſons in the foreſaid day be again remembred. And then obſerve, that theſe waters were certainly ſeparated for ſome purpoſe: for *Deus & Natura nihil faciunt fruſtrá; God & Nature make nothing in vain. He made all things in number, weight, and meaſure,* * ſaith Solomon; ſo that there is nothing which was not made for ſomething. I do therefore conſent again

* Wiſd. 11. 12.

*Lodest. Prælect. A Iron & lib. de Orig. Fon. cap. 10.

again to those who * suppose that these waters do daily nourish and cherish the starres; thereby also so tempering and ordering their beams, that they may remain wholesome to the world; turning also and attenuating those drops, with which they are cherished, into thinne aire: and so doing, nature is kept from perishing before her time.

*Igneæ sunt, sive à luce primæva factæ: & sic, lux est essentia stellarum. Ignis enim non aliud quàm calor densatus, sive lux compacta. Patric.

Neither let it seem strange although the starres be granted to consist most of a * fierie temper, that therefore they cannot be cherished by watrie humours: for it is certain that fires are endued with sundrie qualities or forces, according to the divers mixtion of matter, or divers disposition of the subject. From whence it comes to passe that a bituminous flame is not quenched, but nourished in water; and the fire of lightning is said to burn the fiercer when we strive to quench it. These waters therefore, sweating (in the likenesse of thin vapours) through the utmost extent, or roof of the outspread Firmament (which was made strong by stretching out, and by which they are upholden) do both supplie that decay of aire which otherwise would be, and also do so temper and cherish the diuturnitie of the starres, that thereby they shall continue untill the end of the world.

*Idem.

Elementorum transmutationes (saith * one) *sunt inæquales, ergò & proportiones; ac majores quidem eorum, quæ facilius transmutentur in alia: & hoc ex necessitate, non dico ad mundi æternitatem, sed diuturnitatem. Aqua autem multò magis mutatur in terrã, quàm terra in ipsam: & aer hoc aquæ damnũ, sine maximo sui dispendio, resarcire nullo modo potest nisi ab aquis supercœlestibus.* And (perhaps) the daily wasting of these waters may be the cause that the world is perceived to have a successive declination, and to grow old as doth a garment; untill at the last, age (for want of matter to keep an harmonious transmutation in the conservation of it) shall (according

cording to the determined purpose of Almighty God) suffer it to end, as being worn out, and little able to continue any longer. Which, when it shall be, or how he intendeth to shorten it, rests onely in the secret counsel of the holy Trinitie: the divine word neverthelesse testifying, that (as tokens before it) *there shall be signes in the sunne and the moon, in the heavens and starres. For the starres shall fall from heaven, and the powers of heaven shall be shaken. Cadent de cœlo stellæ* (saith * one) *non ratione substantiæ, sed lucis; quia lumen suũ retrahent, & obscurè reddent.* Which saying agrees directly to my meaning, when I speak of the waters wasting. For as the elements before, from time to time, have suffered a transmutation, and shall now begin to devoure one another: so the starres shall fade, and (perhaps) be weakened in their qualities, by having the lesse powerfull elementarie part in them turned by the more powerfull; or if not so, yet much altered by that sensible decay in the waters above the heavens.

Matth. 24. 29. Mark 13. 25. Luke 21. 26.

* Gerard. loc. Tom. 9 pag. 231.

And thus, though I differ from *Aristotle* and the Peripateticks, yet I have not much declined from the paths of other ancient Philosophers, or from the steps of *Plato*: in which, how farre (in my judgement) we may follow the Academicall sect, the Stoicks, and those of *Epicurus*, hath been related. Howbeit I leave all free to the more judicious; though for mine own part I think thus of the worlds *Systema*. Let therefore those of the adverse part pitch their censure with the more favour: and so I proceed to the following articles.

Artic. 2.

Of their order and place in the skie: and how it comes to passe that one starre is higher then another.

HAving already shewed that the vvhole concave of the heavens is filled with no firmer matter then soft and

and penetrable aire, and that the ſtarres have no ſolid orbs to uphold and move them, it may not unfitly be queſtioned how they ſhould hang in ſuch a weak yielding place, and yet (according to their times) keep ſuch ſeverall certain diſtances one from another, as we ſee they do.

To which, perhaps, ſome would anſwer, that every ſtarre, in reſpect of his either more or leſſe fiery qualitie, doth either more or leſſe aſcend from the centre: and ſo, according to his gravitie or levitie, reſt naturally higher or lower as in his proper place: the aire having a like power in the upholding of fiery bodies, which the water hath in carrying of airie bodies. For as a piece of *Braſill*, or *Lignum vitæ*, will ſink lower into the water then ſome lighter kind of wood wherein there is more aire: in like manner that ſtarre which hath moſt of his matter from the more groſſe elements, takes his place in the loweſt room; whereas the lighter ones are naturally ſeated higher. And indeed this is an anſwer which would ſerve the turn, and bear out the matter well enough, if there were no ſtarres but thoſe which we call the fixed ſtarres; for they are never obſerved to be higher or lower, but alwayes of one and the ſame diſtance from the centre. But ſeeing there be Planets likewiſe whoſe diſtances are unconſtant, and whoſe places, are at ſome one time farre more abſent from the earth then at ſome other; nay, Mars is ſometimes nearer then the ſunne: ſeeing it is ſo (I ſay) their gravitie or levitie cannot abſolutely be the cauſe: but rather ought this to be referred to that infuſed force which his hand firſt gave them who placed them there. For as the Sea being ſtirred by the moon to a loſtie flux, and having lifted up his rolling waves above the neighbouring banks, would in all probability overflow the earth, if the Almightie had not infuſed it with ſome occult

cult qualitie, ſaying, Hitherto ſhalt thou come, and no further; as we reade in Job: So likewiſe the ſtarres would not keep their high and low places at certain infallible times ſo as they do, and be ſo orderly in their motions as they are, were it not from the power firſt put into them when they were placed in the firmament: of which I ſpake but a little before, when I ſhewed they were no living creatures. For concluſion therefore, I like well of the former reaſon if it be referred to the fixed ſtarres; but as concerning the Planets, we ſee that it holdeth not in all and every part, nor yet is abſolutely found ſufficient. And yet for further ſatisfaction of the curious, let it be ſuppoſed that the aire is ever thinneſt in that place whereunto the ſunne is neareſt: ſo that though the Planets naturally have but one place, yet accidentally they may be found either higher or lower, according to their approaching to or from the place of the ſunne; like as may be ſeen in one and the ſame weight, if it be proved how unequally it will ſink in diuers waters, and in waters of a differing thickneſſe. Of which reade more in Mr *Lydiat* his *Prælectio Aſtronomica*, in the fourth and eighth chapters. But in the mean time, and ever after, admire the wiſdome of thy Maker, and praiſe his holy name: For *he hath ſo done his marvellous works, that they ought to be had in perpetuall remembrance.*

O never let theſe works forgotten be:
Their art is more then humane eyes can ſee.

Sect.

Sect. 3.

Of the offices given to the Sunne, Moon, and Starres, in the day of their creation.

Paragr. 1.

Shewing that their first office is to shine upon the earth, to rule over the day and night, &c.

Artic. 1.

Of light, what it is: and whether the Sunne be the onely fountain of light.

THe former part of my discourse hitherto in this dayes work, was chiefly founded upon these words, *Let there be lights in the firmament of heaven*; and upon these, *And God made the starres also*. But now I come to speak of their offices: The first whereof is that exquisite one above the rest; I mean their bright and radiant shining, by which the dismall clouds of foggie darkenesse are daintily devoured, and the sweet comelinesse of the worlds ornament made apparent. For without light all things would appear like the face of hell or horrour, and each parcell of the worlds fabrick lie buried in black obscuritie, and dismall squalour. Whereupon one speaketh worthily, saying, that amongst those * qualities subject to sense, there is none more fit to shew the due *decorum* and comely beauty of the worlds brave structure, none more fit then light. For where it spreads it self (either above us, or below us) all things are then encompast with such a splendour, as if a golden garment were dilated over them, or curiously put upon them. Let it not then be ashamed to shine and shew it self to the praise of him who made it; For, *Praise him sun and moon: praise him oh ye starres and light*, was Davids song. But to proceed. Authours make a difference between *Lux* and *Lumen*.

* But how it is a qualitie, see afterwards.

It

It is called *Lux*, as it is in the fountain, that is, in a bodie which is lucid of it ſelf; as in the ſunne: ſo ſaith *Zanchius*. But it is *Lumen* as it is in ſome *Medium*, that is, *in corpore diaphano*, as is the aire, or water. *Lumen enim nihil aliud eſt quàm lux, luciſve imago, in corpore diaphano.* From whence may be gathered, that that primarie light, which we comprehend under the name of *Lux*, is no other thing then the more noble part of that eſſence which is either in the ſunne, moon, or ſtarres: and ſo far as a corporeall ſubſtance may be given to fire, it may be alſo attributed to that which is properly called light; being in and of thoſe lamps of heaven which were made *ex primæva luce* chiefly, and ſo came to appear of a fiery colour. Whereupon *Patricius*, writing againſt the Peripateticks, ſaith, *Lux eſt eſſentia ſtellarum. Nihil enim aliud flãma quàm lumẽ dẽſius; & lumẽ, non aliud quàm flãma rarior. Calor quoque, non aliud quàm ignis rarefactus atque diffuſus; & ignis, non aliud quàm calor denſatus, ſive lux compacta.* Take therefore my meaning rightly, leſt I be ſuppoſed to be much miſtaken.

And again, concerning *Radius*, which is a Beam or Ray, it is no primarie light neither: but rather (as *Patricius* alſo writeth) it is *Fulgor à Luce exſiliẽs in rectã & acutã figurã ſeu in modũ Pyramidis & Coni promicans.* To which, *Scaliger* is affirming; ſaying, *Lux, eſt alia in corpore lucido, ab eo non exiẽs; & alia à corpore lucis exiẽs, ut Lumẽ & Radius.* And *Zabarel* alſo ſaith, *Lux, alia eſt propriè dicta in aſtris ipſis; alia, à luce producta in perſpicuo.* Whereupon I cannot but be perſwaded, that light in it ſelf, properly & primarily taken, muſt be an eſſentiall property; as formerly I have related: but to the aire, or other things enlightned by it, it is an *accidentall quality approved of God as good, both to himſelf & the future creatures. For although it be commonly ſaid of compound things, that they are ſuch as we may diſtinguiſh of them in

*Obſerve this difference: becauſe light commonly taken is ſaid to be a qualitie.

in ipſâ eſſentiam ſuſceptricem, & in eâ quæ ipſi accidit qualitatem: yet here the caſe proves otherwiſe; becauſe the ſun and ſtars have *ſuſceptam ſemel, ſecúmque immixtam lucem.* And again (as ſaith *Theodoret*) *Lucem quidem condidit ut voluit. Quemadmodum verò firmamento aquas diviſit, ità lucem illam dividens ut voluit, luminaria magna ac parva in cœlo collocavit.*

Sol. ☉ The Sunne.

And as touching the brightneſſe of the ſtarres, the ſunne may well be called *Oculus mundi, The eye of the world.* For he is indeed the chief fountain from whence the whole world receiveth luſtre; ſhining alone, and enlightning our whole hemiſphere, when all the other ſtarres are hid. From whence ſome Philoſophers and Aſtronomers have been of opinion that the fixed ſtarres ſhine not but with a borrowed light from the ſunne. *Plutarch*, in his 2 book and 17 chap. of the opinions of Philoſophers, ſaith that *Metrodorus*, and his diſciples the Epicures, have been of this mind. But according to the minds of the beſt Authours, and neareſt equipage to truth, the ſtarres are called lights, as well as the ſunne and moon; although there be a difference between them, either of more or leſſe. For Paul diſtinguiſheth between the ſtarres and ſunne, *non privatione lucis, ſed tantùm gradu.* And when God ſaid, *Let there be lights in the firmament of heaven*, he made not the ſunne alone, but the ſunne, moon, and ſtarres: the light in the ſtarres being in very deed darkened by that in the ſunne; which doth but differ in degree from that in them. Whereupon it is that the ſtarres ſhew themſelves by night onely when the ſunne is hid, or in ſome deep pit whither the ſunne-beams cannot pierce. If therefore we cannot ſee them, *Id non ſolis, non ſtellarum culpâ fit, ſed oculorum noſtrorum hic eſt defectus: ob ſolaris enim luminis copiâ ac vigorem debilitantur.*

1. Cor. 15 41.

Alſo, ſome adde their influences; as that of the *Little dogge*

dogge, the *Pleiades*, and others, being plain teſtimonies of their native light: For if they had not their proper and peculiar light (being ſo farre diſtant from the inferiour bodies) it is thought they could not alter them in ſuch ſort as they ſometimes do: and evermore the further they be from the ſunne, the better and brighter we ſee them.

And as for the diverſitie of their influence, the differing qualitie of the ſubject cauſeth this diverſitie. So that though this light, for the firſt three dayes, was but one in qualitie, it came to have divers effects as ſoon as it was taken and beſtowed upon the ſtarres and lights. And (perhaps) as there is in them the more of this fire, the hotter is their qualitie: but little fire, and more water, the moiſter and cooler; and ſo alſo, the more earthy ſubſtance, the darker.

The Moon.

Neither do I think that we may altogether exempt the moon from her native light. For although ſhe ſhineth to us with a borrowed light, yet it is no conſequence to ſay, ſhe hath therefore no own proper light. There is (ſaith *Goclenius*) a double light of the moon; Proper, and Strange. The Proper is that which is Homogeneall to it ſelf, or *lux congenita*, a light begotten together with the moon, and eſſentiall to it, although it be but weak. The other is that which it borroweth from the ſunne; as is ſeen in eclipſes & monethly revolutions: For ſhe is one while full, another while hid; one while horned, another while half lightened; which is but in reſpect of us, who cannot ſee what light ſhe borroweth, but as ſhe approcheth from the ſunne: for otherwiſe ſhe is half lightened alwayes. Or (if you pleaſe) conſider it thus, that as a well poliſhed Mirrour tranſporteth the light of the fire, or the ſunne againſt a wall or a floore; ſo the moon receiveth her light from the ſunne, and reflecteth it in the night upon the earth: for the

ſunne, being then abſent, gives an abundant and free leave to ſee it. And again, as in a Mirrour, which hath behind it his foil of lead ſcratched and torn, a man may perceive certain ſpots; So in the moon, becauſe her bodie is in ſome places rare and tranſparent, and in other places maſſie, thick, and ſolid, there appear certain *Maculæ* or blemiſhes: for thoſe places and parts are not of a fit temper to reflect the light of the ſunne.

The Spots of the Moon.

But if it be ſo in the moon, why may not the other ſtarres ſhine likewiſe with a borrowed light as well as ſhe?

I anſwer, Becauſe we have not the like reaſons to declare it. Neither is it like (ſaith *Patricius*) that that unmeaſurable companie of fixed ſtarres in the higheſt part of heaven (which is ſo much more noble then the place of the ſunne, by how much it comes nearer to the Heaven of heavens) ſhould ſhine but by the light of the ſunne: For neither in them, nor in any other of the Planets, doth any man ſee a waxing and waning of light; nor yet are they ever eclipſed, but ſhew alwayes of one and the ſame brightneſſe: and therefore it is not the ſame reaſon between the moon and them. Perhaps, if their bodies were compoſed in the ſame manner with the bodie of the moon, or had the like proportions and temperaments that ſhe hath, it might be ſo: but her lowneſſe ſhews her gravitie; and her gravitie her ſoliditie; and her ſoliditie ſhews, not onely her own light to be weak through a want of that fierie matter, or *lux primæva*, which is in the other ſtarres in a differing degree, but alſo her aptneſſe for reflection is declared to be ſuch, as ſhe may well ſhine by a borrowed light.

Howbeit I do alſo think that the ſtarres have *aliquid lucis aliena*, which they receive from the ſunne. To which *Patricius* alſo aſſenteth (as he is mentioned by * *Caſman* in the firſt part of his Aſtrologie) ſaying, *Tribuit*

* Cap. 10. quæſt. 7.

buit quidem omnibus, ſed lucere nequaquã facit. Nam & ipſa flammæ ſunt, & ſuâ eſſentiâ lux ſunt, non minùs & ſuis viribus lucere poſſunt, & lucent. Sed lumen ſuum eis ſol addit, lucémque eorũ reddit lucidiorem. Lucem ergò eis non indit, ſed inſitam adauget: meaning that the ſunnes light increaſeth the light of the ſtarres, making it the brighter and the clearer: which muſt be underſtood of them, ſo long as they are at a convenient diſtance from the ſunne. For if they be too near, either the leſſer light is obſcured by the greater (as is ſeen in the Planets, being often hid by the beams of the ſunne) or elſe ſuch a dark ſtarre as *Mercurie*, will with the loſſe of his light ſhew us his dark bodie, which ſometimes happeneth, being then ſeen as a ſpot in the ſunne: For if you take *Mercurie* in his beſt hue, he hath but a cloudie countenance, and a leaden look; which therefore argueth that he hath a thick bodie and little light: of which I ſhall need to ſay no more.

Artic. 2.

Of the twinkling of ſtarres, or vibration of their light.

THe twinkling of the ſtarres is the vibration or trembling of their light. Or rather thus; It is when the light of any ſtarre ſeemeth to tremble. For indeed, to ſpeak properly, the ſtarres themſelves do not twinkle, as we think they do; but either from the trembling of the eye, or motion of the aire, this appearance proceedeth. For when the eye looks long at a ſenſible object whoſe brightneſſe excelleth the ſenſe, it then beginneth to faint, and being weak and wearie, is poſſeſſed with a kind of trembling; and thereupon we think that the ſtarre it ſelf twinkleth. Alſo the Optick Maſters confeſſe and prove, that the forms of the ſtarres are compre-

hended of the ſight reflectly, and not rightly: that is, a right line drawn from the eye falleth not into the centre of the ſtarre, but into the form of it reflected and refracted in the aire to the ſight. Now it is manifeſt, that as the aire hath one motion proper to it, which is upwards; ſo hath it another motion improper, cauſed by the revolution of the heavens every 24 houres, which draweth all the airie region about therewith: by which means the apparent form of the ſtarres is diſtracted, ſeeming to caſt forth ſparkles, called twinkling. For if the bodie move wherein the form of the ſtarre appeareth, it muſt be ſo: which we may well prove by a piece of ſilver in the bottome of a ſwift running brook, or by the reflection of the ſtarres ſeen in the ſame: for by the running of the water the reflected form is diſtracted, and as it were broken: and ſo it is likewiſe in the aire with the ſtarres.

But may not this twinkling be ſeen in the Planets as well as in the other ſtarres? I anſwer, that not alwayes, yet ſometimes it may: and this is but when a watrie vapour is near unto them, which is carried and toſſed of the winds with a various motion: for then the forms of the Planets alſo being refracted in the ſaid vapour, appear to the ſight as if they twinkled. Now this is moſt of all perceived in the Eaſt at the time of their riſing: whereupon it comes to paſſe that the common people have ſuppoſed they have ſometimes ſeen the ſunne dance, and as it were hop up and down; which, why ſome have attributed it to ſuch and ſuch dayes, is * fabulous: For this may be upon any day when the ſunne meets with a fit portion of vapours at the time of his riſing; and the other Planets may alſo in ſome ſort ſometimes ſhew it, when they have climbed to an indifferent height above the Horizon: which becauſe it is not ordinarie, ſome have falſely ſuppoſed that the Planets twinkle not at all.

A reaſon of the Sunnes dancing.

* See *Scal. Exer.* 63. & *Goclenius Diſput. Phyſ.*

And

And again, let this be remembred, that (if there be fit vapours rightly placed) Mars and Venus twinkle more then Saturn, Jupiter, and Mercury: but otherwiſe this appearance is neither in Mars nor Venus, nor any of the reſt.

Paragr. 2.

Of that other office which was given to the ſtarres; viz. that they ſhould be for ſignes, &c.

Artic. 1.

That the ſtarres are ſignes of future events; and that by their naturall qualities, they work upon the inferiour world, and all the parts of the ſame.

IF I ſhould expound the words of Moſes ſo nicely as ſome have done, the ſtarres muſt then either ſignifie nothing in the courſe of nature, or elſe be for ſignes onely of ſeaſons (as Spring, Summer, Autumne, Winter) and of dayes and years. Which expoſition doth certainly tie up the ſenſe in too ſtrait bands: For it is plain enough that Moſes very poſitively ſetteth down as a diſtinct office by it ſelf, that they were made for ſignes: And then he proceedeth, adding therewithall, *And let them be for ſeaſons, and for dayes, and for years.*

In conſideration whereof, the ſentence certainly muſt be divided.

And firſt let us obſerve out of it, that the ſtarres, by a divine ordination, were ſet in the heavens to be for ſignes of future events: wherefore it is ſaid, *Let them be for ſignes.*

Secondly they were appointed to be (as it were) heavenly *clocks*, and remarkable *meaſures*, by their motions defining and diſcerning Time and the parts thereof, as dayes, weeks, moneths and years: And therefore it is alſo added, *And let them be for ſeaſons & for dayes,*

and for years. Of which two offices I purpoſe to diſcourſe a while; beginning with the firſt, as being moſt pertinent to this Paragraph.

And leſt it may be thought that Moſes his meaning is here miſtaken by me, beſides other things that I purpoſe to remember, I would have him compared with the Prophet Jeremie, in the 10 chap. at the 2 verſe, where, when the Prophet commands the people that they ſhould not learn the way of the Heathen, he calleth the ſtarres (like unto Moſes in this very text) *The ſignes of heaven.* From whence *Melanchthon* gathereth, that the Prophet doth not onely name them ſignes, but alſo ſheweth that they were ſet to be ſignes of portending ſomething. For, *Non ait Jeremias, nihil eſſe ſigna cœli; ſed, A ſignis nolite timere. Imò cùm nominat ſigna, portēdi aliquid affirmat.* And *Luther* alſo affirmeth, in his cōmentarie upon the words of Moſes, *Simpliciter lunā cum ſole & ſtellis in firmamēto cœli Moſes dicit poſitas, ut eſſent ſigna futurorum eventuum, ſicut experientia de Eclipſibus, magnis conjunctionibus, & aliis quibuſdam Meteoris docet.* Which is, *Moſes plainly ſaith that the moon, with the ſun & ſtars, were placed in the firmament of heaven, that they ſhould be for ſignes of future events, as experience teacheth us in Eclipſes, great conjunctions, Meteors, and the like.* To which may be alſo joyned the teſtimonie of learned *Philo*, alledged by Sr *Chriſtopher Heidon* in his defence of Judiciall Aſtrologie. *This man* (ſaith he) *was familiar with Peter the Apoſtle, and with Mark*; and in divers places, but ſpecially in his book *De Mundi fabricatione*, in his expoſition of that in the 1 of Geneſis, *viz.* LET THEM BE FOR SIGNES, he thus ſpeaketh, ſaying, *They were created, not onely that they might fill the world with their light, but alſo that they might be for ſignes of future things. For by their riſing, ſetting, deſections, apparitions, occultations, & other differences*

*Præfat. in lib. Schmeri de judiciis nativit.

ferences of motion, they teach men to conjecture of the event of things: as of plenty and dearth; of the growing up or decay of creatures animate; of clear weather & ſtorms; of calms & winds; of overflowings & of droughts; of the quiet motion of the ſea, & the boiſterous times of waves; of the anniverſarie changes of times, either when the Sumer ſhall be toſſed with tempeſts, or the Winter ſcorched with heat; or when the Spring ſhall be clothed with the nature of Autumne, or Autumne imitate the Spring. Yea (ſaith he) *by theſe ſome have foreſhewed when there ſhould be a ſhaking or trembling of the earth, with infinite other things which have certainly come to paſſe, inſomuch that it may be truly ſaid, The ſtarres were appointed for ſignes and ſeaſons.* Thus farre *Philo*: then which what can be plainer?

Neither are we to take them as bare, naked, and ſimple ſignes onely, but as cauſes alſo of worldly events; which whileſt ſome have denied, what do they but runne mad with reaſon, and plainly oppoſe themſelves to more then common ſenſe? For it is certain that the ſame thing may be both a ſigne and a cauſe: a cauſe, as it worketh to an effect; and a ſigne, as, being preſented to the ſenſe, it leadeth us to the knowledge of the effect: And therefore when the ſtarres are called ſignes, their cauſalitie is not excluded. Howbeit, in ſome things when they work upon a ſubject not immediately but by accident, they be then occaſions rather then cauſes.

The Starres are cauſes as well as ſignes.

But let me enlarge my ſelf upon this diſcourſe a little more: and becauſe ſome have denied that the ſtarres have any virtue at all, or that we ought to attribute no more power to them then to the ſignes at an Inne-keepers poſt or tradeſmans ſhop, I purpoſe to ſhew the vanitie of that errour as plainly as I can, both by Scripture, and alſo by daily experience.

And firſt for Scripture. Thoſe oracles tell us that great

is

is the force and dominion which the ſtarres have; heaven being the admired inſtrument of the glorious God, whereby he governeth the frame of this corruptible world. For had the heavens and ſtarres no force at all, the Scriptures would never diſtinguiſh between the ſweet influences of the *Pleiades*, and the binding virtues of *Orion*: but the Scripture makes ſuch a diſtinction: therefore the ſtarres have their power. The *minor* is proved out of the book of Job, chap. 38. 31. where the words are theſe, *Canſt thou bind the ſweet influences of Pleiades? or looſe the bands of Orion?* by which ſpeech the Almighty doth not onely ſhew that the ſtarres have their virtues, but alſo declare that their power and virtue is ſuch as no man on earth is able to reſtrain, unlooſe, or bind it: and here S. *Auſtin* alſo teacheth us, that God comprehendeth all the reſt of the ſtarres, by the figure *Synecdoche*, putting the part for the whole; which is an intimation that the reſt have their ſeverall virtues, as well as theſe. For further proof whereof ſee, concerning ſome of the other, in Deuteronomie, chap. 33. 14. *Of Joſeph he ſaid, Bleſſed of the Lord be his land, for the precious things of heaven, for the dew, & for the deep that coucheth beneath, & for the precious things brought forth by the ſunne, and for the precious things put forth by the moon*: where we ſee that the ſunne and moon have power to thruſt forth the fruits of the earth. And again, * *I will heare the heavens, and the heavens ſhall heare the earth*: where ſee laſt of all, that the vegetation of the fruits of the earth dependeth not upon one or two conſtellations, but upon the whole heavens.

* Hoſea 2. 21.

Alſo were the ſtarres and lights without power, the Scriptures would never tell us of their dominion over the earth: but the Scripture ſpeaketh of their dominion: therefore they be not deſtitute of power and virtue. The *minor* is proved in Geneſis, chap. 2. 1. and in the ſecond book

book of Kings, chap. 17. 16. and chap. 21. 3. and chap. 23. 5. and in Jeremie, chap. 19. 13. and in Zeph. chap. 1. 5. and in the Acts, chap. 7. 42. For in all theſe places the holy Ghoſt calleth the ſtarres, the *hoſt* and *armies of heaven*; thereby amplifying the divine power of God by the force and power of theſe glorious creatures: and this alſo is further confirmed by that in the ſong of Deborah, Judg. 5. 20. where it is expreſſely teſtified that *The ſtarres fought from heaven, the ſtarres in their courſes fought againſt Siſera.* Thus farre Scripture.

And now let experience alſo ſpeak, that thereby they who will not frame their underſtandings to be taught by the one, but will ſeek for ſtrange expoſitions, may be forced to yield and acknowledge the truth by compulſion of this other: in the front whereof, I cannot but remember the noble * Poets ſaying,

Senſeleſſe is he, who (without bluſh) denies
What to ſound ſenſes moſt apparent lies:
And 'gainſt experience he that ſpits fallacians,
Is to be hiſt from learned diſputations:
And ſuch is he, that doth affirm the ſtarres
To have no force on theſe inferiours.

* *Du Bart.*

1. As for example, when the ſunne ſhifts his habitation, how diverſly are the ſeaſons differing! inſomuch that although the froſtie beard of winter makes us tremble and ſhiver through extremitie of cold, the warm luſtre of the ſummers raies cauſeth us on the contrary to ſweat and as it were pant through heat.

2. Alſo the terrible accidents that ſucceed eclipſes may not be forgotten nor vilipended: for theſe teſtifie that the ſunne, by his heat and light, quickeneth, after an admirable faſhion, all earthly creatures, being as it were the ſourſe and conſerver of vitall heat; and that the moon alſo hath a great power over inferiour bodies. For if it were otherwiſe, ſuch lights coming to be hidden from

from the earth, where there is a continuall revolution of generation and corruption, could not cauſe after their eclipſes the nature of inferiour things to be ſo altered and weakened as they are, both in the elements, and alſo in bodies compoſed of them.

3. And furthermore, who ſeeth not how orderly the tides keep their courſe with the moon? of which I have ſpoken in the third dayes work.

4. Alſo, it is an obſervation that ſeldome faileth, *viz.* that we have thunder and lightning in the ſummer time at the meeting of Mars with Jupiter, Sol, or Mercurie; and for the moſt part great winds, when Sol and Jupiter, or Jupiter and Mercurie, or Mercurie and Sol, are in conjunction.

5. And again, the increaſe and decreaſe of bodies, or of marrow, bloud, and humours in the bodie, according to the increaſe and decreaſe of the moon, doth ſpeak for that horned queen, and ſignifie that her virtue is not little. For as ſhe fills with light, the marrow abounds in bones, the bloud in veins, the ſap in trees, the meat and moiſture in the oiſter, crab, and creafiſh.

6. Moreover, experience alſo teacheth, that all ſuch wood as is cut for timber, if it be not cut after the full moon, will ſoon be rotten.

7. Alſo thoſe peaſe which are ſown in the increaſe, never leave blooming. And (as ſome report) the pomegranate will bear no fruit any longer then juſt ſo many years as the moon was dayes old when it was firſt ſet and planted. The *Heliotropium*, with certain other flowers and plants, we likewiſe ſee that they keep their courſe with the ſunne. And *Plinie* reports in his 37 book at the 10 chapter, that the *Selenite* is a ſtone which hath the image of the moon in it, increaſing and decreaſing according to her courſe in the heavens. And doth not *Cardan* alſo report for certain (as Sir *Chriſtopher Heydon* teſtifieth)

teſtifieth) that *Clement* the 7 had a precious ſtone, in which there was a little ſpot, that according to the ſunnes motion every day riſing and ſetting did turn about, and both appear and vaniſh in the ſtone?

8. Alſo, Phyſicians find the daily alteration of ſick ſpirits to be ruled by the moon; and that therefore their obſervation of criticall dayes is no vanitie.

9. And again, experience hath alſo witneſſed that thoſe children which are born in the new moon, or in the time of an Eclipſe, Saturn or Mars in a bad aſpect to the moon, thoſe children (I ſay) do ſeldome live till they be weaned, but die either ſooner or later in the time of their nurſing. To which purpoſe* *Joachimus Hellerus* alſo ſpeaketh, ſaying, *Qui prope luminarium Synodos eduntur in lucem, Saturno aut Marte infeliciter lunam reſpiciente, ii naturâ imbecilliores evadunt, ac plerique intra nutritionis annos extinguuntur; quod & ego domeſtico malo filii primùm, deinde filiæ obitu, & alii infinitis exẽplis experti ſunt.* And he gives this reaſon of it. *For when* (ſaith he) *the* Humidũ radicale *which keeps life and ſoul together, is made weak in thoſe ſmall bodies by reaſon of the thinnes of it, then by the combuſtion of the moon, wherein all humours are ſenſibly waſted, it is eaſily conſumed by too much drines: whereupon thoſe bodies thus affected are conſumed for lack of naturall moiſture.*

* *Ex Maſtallero in his Aſtrologiæ encomiis.*

I conclude therefore, that as it is with herbs growing on the ground, ſo with ſtarres moving in the skie; *viz.* that as herbs have their naturall qualities and operations, ſo the ſtarres likewiſe work on this inferiour world, by their qualities and naturall virtues.

Howbeit this operation is meaſured and ſquared according to the matter whereinto it is received: as for example, we find that the moon is more operative in moiſt bodies, then in others leſſe participating of ſuch a qualitie: and ſo alſo for the ſunne, the heat of it is moſt where the ſubject is beſt capable of it. Come

Come we also to man, and on him likewise the heavens have their operation, working distempers both in bodie and mind, as appeareth Matth. 4. 17. where we see, that the people offer the lunatick to be healed of Christ. Now this disease of lunacie, is a disease whose distemper followeth the course of the moon, as is evident by the judgement of all Physicians.

But here I would gladly enlarge my self a little further; and then man must be distinguished into two natures: the one materiall in respect of his bodie; the other spirituall in respect of his soul: And see now how the heavens work on him.

1. As for his materiall part, it cannot be exempted from their operations: For it is not onely a truth built upon the testimonie of learned Physicians and expert Philosophers, *animantiũ corpora à lumine planetarum affici*, that the * bodies of living creatures are affected with the light of the starres, and that all of them have a great force in the right ordering or disordering of their * temperaments; but even experience seeth how the change of * aire changeth us in our bodies, the humours and parts being stirred by celestiall influence, especially by the moon, according to whose changes our bodies daily undergo an alteration.

2. As for the humane soul, how farre, or whether not at all it be governed by the starres, is a matter of great consequence: yet I am confident that we may somewhat clear the doubt by this distinction, *viz.* that the heavens work not immediately upon the soul, but mediately by the humours & corporeall organs whereof the souls operation dependeth. For the operation of the soul whilest it is in the bodie, dependeth merely on materiall and corporeall organs: and the elementarie matter, whereof these organs consist, is subject to the operation of the heavens, even as any other elementarie matter: In which regard it

* *Ahi positus alias affectiones imprimunt; vel concitatis scilicet turbatisve humoribus, vel sedatis ac perpurgatis, vel serenatis ac collustratis spiritibus, vel excitatis ac roboratis principum membrorum facultatibus Goclen. Disp. Phys.*

* *Crases humanorum membrorum sive corporum, etsi multa sumunt à materia seu à semine, tamen certum est, eas valde temperari potestate syderum, & ab eorundem positu variari & gubernari. Idem ex Pucero.*

* *Nec verò dubium est, ut solis & lunæ, ità cæterorum planetarum lumen variare tempestates, & aerem, & corpora nostra afficere. Marst ex Milichii Orat. de Astrol.*

it may be affirmed that the heavens in ſome ſort do work upon mens minds and diſpoſitions. And hereupon it comes to paſſe that Mars doth ſometimes ſow the ſeeds of warre by his working upon aduſt choler, and the like. Or the aire, being greatly out of tune, cauſeth not onely many ſickneſſes, but ſtrange diſorders of the mind; and they breaking out into act, do many times diſturb ſtates, and tranſlate kingdomes, work unluckie diſaſters and the like: of which I ſpake before in the * ſecond dayes work.

*Chap. 5. Sect. 2. Parag. 4. Artic. 1.

And now know that if the operation of the heavens in this, be but ſo farre forth as the ſoul depends upon the bodily inſtruments, all that is done to the ſoul is but an inclination: for there can be no compulſion where the cauſe is ſo remote. And therefore let it be obſerved that it is one thing to cauſe, another thing to occaſion; or one thing to inferre a neceſſitie, another thing to give an inclination: The former we cannot averre to be in the power of the ſtarres, foraſmuch as mans will, which is the commandreſſe of his actions, is abſolutely free from any compulſion, and not at all ſubject to any naturall neceſſitie or externall coaction. Howbeit we cannot deny a certain inclination, becauſe the ſoul of man is too much * indulgent to the body, by whoſe motion (as one worthily obſerveth) it is rather perſwaded then commanded. There is therefore no Chaldean fate to be feared, nor any neceſſitie to be impoſed upon the wills of men; but onely an inclination: and this inclination is not cauſed by an immediate working of the ſtarres on the intellectuall part or mind of man, but occaſioned rather mediately, or ſo farre forth as the ſoul depends on the temperaments and materiall organs of the bodie. In which regard I hope never to be afraid of the ſignes of heaven, neither is there cauſe why I ſhould ever curſe my ſtarres, ſeeing

*How our minds do ſympathiſe with the body, ſee in the 2. day, Chap. 5. Sect. 2 Parag. 4. Artic. 1. *prope finem.*

I know in this the utmoſt of their power. And as it was ſaid to that Apoſtle, *My grace is ſufficient for thee*: ſo may every one take it for granted, that there is a ſecond birth which overſwayes the firſt. To which purpoſe one makes this an obſervation,

Juſtè age----Sapiens dominabitur aſtris;
Et manibus ſummi ſtant elementa Dei.
Do godly deeds, ſo ſhalt thou rule the ſtarres;
For then God holds the elements from warres.

Or, as another not unfitly alſo ſpeaketh,

Qui ſapit, ille animum fortuna præparat omni,
Præviſúmque poteſt arte levare malum.
The wiſe, for ev'ry chance doth fit his mind.
And by his art makes coming evils kind.

*Chirom. lib. 5. And in a word, that pithie * ſaying of *Joannes de Indagine* ſhall cloſe this Article, *Quaris à me quantum in nobis operantur aſtra? dico,* &c. *Doſt thou demand of me how farre the ſtars work upon us? I ſay, they do but incline, and that ſo gently, that if we will be ruled by reaſon, they have no power over us; but if we follow our own nature and be led by ſenſe, they do as much in us as in brute beaſts, and we are no better.* For, agunt, non cogunt, *is all that may be ſaid.*

Artic. 2.

Whether it be not a derogation from the perfection of things created, to grant that the ſtarres have any kind of power over the actions of men.

AS for the power which the ſtarres can have in this kind, I have, in the end of the former Article, alreadie declared. Howbeit, that I may leave as few ſcruples behind me as I can, my purpoſe is to clear this queſtion a little more. For it hath been the ſerious perſwaſion of not a few, that (according to the tenet of *Baſill*, in his *Hexameron*, & ſome others) the diſpoſitions of men may not

not be imputed any whit to the ſtarres, without wrong either to God or them. If (ſay they) vicious inclinations or evil actions be ſtirred up by the ſtarres, then God ſhould be the cauſe of humane outrages, wickedneſſe, and the like. Or again, if the moderation of our actions dependeth upon the ſtarres, then many abſurdities would follow. For firſt, thoſe ſtarres whoſe aſpect is ſaid to be evil, ſhould either of themſelves be created evil by their maker; or elſe it muſt be that in reſpect of their own wills they made themſelves evil afterward: neither of which may be affirmed. Not the firſt, becauſe every thing that God made was very good, Gen. 1. Nor the ſecond, becauſe ſeeing the ſtarres are inanimate and creatures without life and ſoul, it were wickedneſſe to attribute a will unto them.

Hyperius Method. Theol. lib. 2.

To all which objections and doubts it may be thus anſwered, *viz.* that the ſtarres are no malicious agents, voluntarily ſtriving to do miſchief to the world; but rather ſuch as do harmleſſy ſend down their naturall influences and powers into the Univerſe: and had it been that man had not fallen, their inclinations in him had been no inclinations, nor their power in occaſioning felt any jot at all: The evil proceeds from the nature of man, who loſt his puritie and ſtrength of will, in yielding to that which was forbidden; it comes not from the ſtarres, but from our ſelves. And ſo* *Melanchthon* doth in effect anſwer to that of *Baſil*, ſaying, that we ought in this to conſider what excellencie of condition our humane nature hath loſt; and thereby obſerve how grievous and evil ſinne is, by which our temperatures are become brutiſh; and not raſhly condemne, or without conſideration go throw the ſtarres out of heaven. For in this preſent ſtate of things (*Nè nunc quidē ſtellas ſcelerū cauſas eſſe*, they be his own words) we ſay not that the ſtarres are cauſes of our ſinne; in regard, that though our inclinations

Præfat. in lib. Joh. Schon. de judiciis Natiu.

riſe from them yet they are not ſole or chief cauſes of our actions, but our will is the principall cauſe thereof, which was firſt created in perfect libertie, by which it both had power to withſtand, even as ſtill it ought to refrain all inordinate inclinations. *Non enim fatalem neceſſitatem conſtituimus, nec cogi Neronem à ſtellis, &c.* For we do not conſtitute fatall neceſſitie, nor affirm that Nero was compelled by the ſtarres unto his ſo great and monſtrous ſinnes: but yielding to his luſts he willingly entertained thoſe rages, which the devil more and more inſtigated, and ſo became worſe then his nature (though bad enough) had made him. Hitherto *Melanchthon* to that of *Baſil.* Wherefore when we fall into a due conſideration of theſe things, and find that it was the fall of our firſt parents which hath induced this diſproportion between our natures and the influences of the ſtarres, we ſhall ſoon ſee where the fault reſteth, namely in our ſelves. For (as that worthy * Knight obſerveth) we muſt conſider, that the impreſſion or operation of every agent is alwayes anſwerable, not to the power of it ſelf, but to the capacitie and aptneſſe of the patient: according to which rule, the ſtarres produce their effects, even as the ſubject or matter is, in which their influence doth work. Which is but as I ſaid before, *viz.* that if man had not fallen, their inclinations in him had been no inclinations, nor their power in occaſioning felt any jot at all. For as the fire hurteth ſore eyes, but warmeth cold hands; ſo the ſtarres are *formaliter bona*, although *effectivè* (according to the unapt qualitie of the ſubject) they produce a ſad effect. Or, to uſe again the words of the ſaid authour, as we ſee the wine, which is healthfull and comfortable to ſome, how quickly it hurteth the conſtitution of another who hath but a weak brain; ſo the ſunne doth ſoften and melt wax, but ſtiffen and make clay hard: yet no man for this affirmeth either the wine to be drunk, or the ſunne

* Sir Chriſtopher Heydon.

to

to be formally ſoft, or hard. Wherefore (ſaith he) by this I may boldly conclude, that although it be confeſſed, that the ſtarres are efficient cauſes of our inclinations; yet there is no conſequence to conclude them ſuch themſelves as the effects are that they produce: for where the fault reſteth, hath been declared. Furthermore, he alſo proveth againſt thoſe who ſay the ſtarres are tainted in being cauſes by accident, or occaſions many times of ill; he proveth (I ſay) that every occaſion to ſinne is not to be accounted a provocation to ſinne, or to be held unlawfull: for if this were admitted, we muſt alſo pollute God himſelf with ſinne, becauſe he hath made fair women, and ſweet wine, by means whereof many men fall; yet nevertheleſſe none will denie them to be good: for they have their lawfull uſe and right end. Wherefore he doth here alſo excellently conclude, that as no man will ſay, that the Phyſitian or his medicines do ſinne, though, when they reſtore a ſpent and diſeaſed bodie, accidentally they procure luſt: no more are the ſtarres to be accounted bad or to ſinne, though in conſtituting the temperature of our bodies, they may be truly confeſſed cauſes by accident, or occaſions of ſinne. The queſtion is therefore reſolved, that it is no derogation from the perfection of things created although we grant the ſtarres to have a kind of power over the actions of men: which power, both how and what it is, hath been declared.

Artic. 3.

Of predictions, or whether the ſignes of heaven may be underſtood or ſearcht into.

THey be Davids words, that *The works of the Lord are great, & ſought out of thoſe who have pleaſure therein.* And Moſes here, in teſtifying that God created

the ſtarres for ſignes, doth likewiſe ſhew that they may be underſtood; otherwiſe to us they vvere no ſignes at all. Neither do I doubt, but that even Moſes himſelf, and Daniel likevviſe, vvho vvere *brought up, the one in the learning of the Egyptians, the other in the skill of the Chaldeans, did underſtand the ſignification of theſe ſignes. And from vvhence vvas it that thoſe nations had their knowledge, but from Noah and Abraham, if *Joſephus* or *Beroſus* may be credited? For concerning Noah, do not thoſe Authours ſtorie, that ſoon after the floud he taught the Armenians and Scythians the ſecrets of theſe things? Whereupon they ſaid, that he participated of a divine ſpirit. So alſo Abraham, that Father of many nations, did equally inſtruct the Chaldeans and Egyptians: although indeed aftervvards it vvas their bold adventure to mix magick, and ſuperſtitious vain inventions, with this their lawfull skill.

*Act. 7. 22. Dan. 1. 17.

The names of the ſtarres may be known.

And for us, experience hath travelled in the manifeſtation of the ſeverall qualities belonging to the lamps of heaven. For as vve knovv the fire to be hot, the water moiſt, this herb to be cold, that to be drie: ſo alſo by obſervation, it doth manifeſtly appear that the ſunne gives heat and cheriſheth, the moon moiſteneth, Mars drieth; and ſo of the reſt. Or thus, ♄ Saturn is cold and drie, ſtirres up and increaſeth melancholy. ♃ Jupiter is temperately hot and moiſt, works moſt upon ſanguine complexions, ſtirring up and increaſing that humour. ♂ Mars, through his heat and immoderate drineſſe, ſtirres up and increaſeth choler; and ſo, often proves an accidentall cauſe of brawlings, fightings, warres, and the like, beſide ſuch ſickneſſes as may come by the ſuperabundancie of that humour. ☉ Sol is moderately hot and drie, greatly cheriſhing all kind of creatures. ♀ Venus is cold and moiſt, but it is in a temperate manner; and as for her operation it is ſeen moſt in flegmatick complexi-

ons.

ons. ☿ Mercurie is ſaid to be drie in reſpect of his own nature, but joyned to any of the other Planets, he puts upon him their natures, and works as they work. Then followeth ☾ the Moon, and ſhe is vvell knovvn to be the miſtris of moiſture. Neither can you truly ſay that it is impoſſible to find their natures to be either thus or thus: for it is but 30 years that the longeſt of theſe did ever ſpend in his periodicall revolution: and but 72 years (as *Tycho* teacheth) can runne about whileſt the fixed ſtarres alter one degree in their longitude. Inſomuch that Saturn (whoſe period is but 30 years) cometh twice to the ſame point of heaven before the eighth ſphere is moved one degree: and Jupiter (whoſe revolution is 12 years) cometh 6 times to the ſame place: and Mars (who accompliſheth his period in little leſſe then 2 years) meets 36 times with the ſame ſtarres in the ſame place: and as for the Sunne, Venus, Mercurie, and the Moon, their meetings with them be oftner. Alſo it is certain that the great conjunction of Jupiter and Saturn, is once every 20 years; and Mars and Saturn viſit each other in leſſe then every two years: by means whereof it is no hard thing, or as a thing impoſſible, to find out the ſimple natures either of the Planets or fixed ſtarres.

And from theſe natures thus known, and their mixtures, and places obſerved, it is that the effect is foreſeen and the judgement given: which, if it be modeſtly, carefully, deeply, and deliberately done, by one well verſed or converſant in theſe things, doth for the moſt part happen as is foretold: for the moſt part, I ſay, and not alwayes. For as the Phyſician knoweth that the ſame portion of either ſingle or mixed ſimples, will not work upon all bodies alike; ſo neither can the like portion and power of qualities ſtirre up, or work alwayes *ad idē*, but may ſometimes receive either intention or remiſſion, according

cording to the indiſpoſed aptneſſe of the ſubject, the elements or elementary bodies not alwayes admitting of their powers alike; or when they be overſwayed by more potent and prevailing operations. For univerſall and particular cauſes do many times differ, and then the one hinders the operation of the other. As for example, particular cauſes (as the conjunction of Venus and the Moon, or ſome ſuch like meeting) may promiſe rain, ſnow, or ſleet, when univerſall cauſes (which are not ſo eaſily ſeen) do often turn it into more fair and warm weather. And ſo alſo particular influences may ſeem to work upon ſuch or ſuch humours, and thereupon make the bodie ſubject to this or that ſickneſſe, and the mind enclined to this or that kind of action, vvith many ſuch other like things: howbeit it may ſo happen that nature may be at this time ſo abſtruſely ſhut up, that what vve ſee not may overpovver and vvork beyond vvhat we ſee.

A man had need therefore have *Argus* his eyes to pierce throughly into theſe cauſes, and examine without raſhneſſe either what may help or what may hinder; otherwiſe his judgement may fail him even in things wrought by the courſe of nature (for of other things he ought not to judge.) And indeed when there is a divers mixture of qualities, all in a manner of equall portions (as it may ſometimes be) how hard a thing is it then to find out (without a ſound judgement) the true event! for there be many difficulties proceeding from the weakneſſe of our judgements. And for that again which I ſaid before of natures abſtruſe kind of working, although I be no Stoick to tie Gods mightie hand to ſecond cauſes, yet I verily ſuppoſe that all things are not beyond the courſe of nature which ſeem to be extraordinarie; but even many ſtrange ſeeming things are wrought by the power of nature: as ſometimes in unwonted

wonted ſtorms, tempeſts, droughts, ſtrange appearances, or other like accidents. And this again I alſo think, that one man may ſee the cauſe when another cannot: whereupon it comes to paſſe that there is ſuch diverſitie of judgements and thwarting of opinions many times about one and the ſame thing. Alſo I might adde ſomething (which one or other will be readie to object) concerning the devils permiſſion in raiſing unwonted winds, ſtorms, and ſuch like. Or I might ſpeak, not onely of Gods power, but of his providence likewiſe in diſpoſing his creatures to manifeſt their operation rather in one place then in another; which is an act proceeding from his ſecret purpoſe and divine wiſdome: as when the clouds (according to his decree) do disburden themſelves of their wearie drops rather here then there, or there then here: For, ſaith he in the 4 chap. of Amos, at the 7 verſ. *I have cauſed it to rain upon one citie, and it hath not rained upon another, and the citie where it hath not rained was barren.* But I ſhall not need to meddle further: For (notwithſtanding theſe difficulties) it is manifeſt enough that the ſignes of heaven may be both ſought into, and alſo in ſome ample meaſure underſtood.

For it is true that God Almightie having both ſet and foreſeen the courſe of nature long before, doth now uphold it by his providence, inſtrumentally to perform his will. Neither every day doth he make the windows of heaven to ſtand open, or the fountains of the great deep to be broken up; nor yet doth he every day make the ſunne or moon to ſtand ſtill, or the ſhadow to go back, or an Eclipſe to be at a quite contrarie time, or the moon again to ariſe before her uſuall courſe: but hath undoubtedly left his works to be *ſought out of all thoſe who take pleaſure therein*; and, according to that portion of ſound judgement which he hath given to

every one, they may underſtand either more or leſſe of theſe ſignes: For as one ſtarre differeth from another in luſtre and beautie; ſo one mans knovvledge and better judgement tranſcends not ſeldome above the reſt. Neither can the devil every day have it in his commiſſion to go and blovv dovvn houſes upon the heads of *Jobs* children. Nay (ſaith one) if theſe ſignifications are not to be conſidered, vvhy are they ſo divinely vvritten and painted in the heavens? Surely it vvere impietie altogether to pluck or dravv avvay our minds from the obſervation of theſe things. For if the heavens (as they do) declare the glorie of God, or the firmament ſhevv forth his handie vvork, we may well believe that they expreſſe vvhat God effecteth by them: for othervviſe every thing vvhich God created, doth declare his handie vvork as vvell as they. Eclipſes, Conjunctions, Prodigious ſights, Flaſhings, Comets, Nevv-ſtarres, vvhat are they but the Oracles of God? by vvhich, changes, alterations, and ſundrie calamities are threatned to the vvorld: And theſe, if any one contemne them, vvhat doth he but deſpiſe the admonitions of God? Alſo how much theſe obſervations have profited the Commonvvealth, let *Thales* teach us: For they that have *Thales* his skill, may by theſe ſignes judge of cheapneſſe and plentie, of dearth and dearneſſe, vvith other like things, vvhoſe knovvledge cannot but be profitable to the life of man.

The ſignes of heaven muſt not be abuſed.

Onely bevvare that more be not attributed to the heavens, then to him that made the heavens; not more to the ſervants then to the Maſter, as they did vvho made them Gods; or they vvho truſt and relie upon them, not daring to take a journey, or begin a vvork, or ſpeak vvith a friend about any buſineſſe, vvithout a needleſſe conſultation: And yet I think that a vviſe man, not void of religion, may make very good uſe of elections agreeing to the *Radix* of the nativitie; vvhen others may

may erre ſuperſtitiouſly, and doat about they know not what.

Alſo know that the obſerving of theſe ſignes muſt not be mixed with magicall ſpells, as charmers do, when in ſtead of uſing, they come to abuſing of herbs: For as the herbs on the ground were not made to be abuſed in ſuch damned and forbidden practiſes; no more were the ſtarres in the skie. Neither ought the obſerving of theſe ſignes to be mixed with characterricall practiſes, diabolicall or ſuperſtitious divinations, making of images under ſuch or ſuch a conſtellation, dangerous elections of times, either to procure good or bring down ill from heaven, as they did who blaſphemouſly maintained, that men are long-lived and their ſouls go to heaven when Saturn is in Leo: or they; who have not quaked to affirm, that when the Moon is joyned with Jupiter in the head of the Dragon, whatſoever a man then asketh at the hands of God, he ſhall receive. Nor were they made to decide horarie queſtions, or ſortilegious demands. Neither do I think them to be of any uſe for the finding of things loſt: for this (as that worthie knight obſerveth) pertaineth onely to that part which judgeth by queſtions, which neither *Ptolemie*, nor thoſe of beſt judgement do uſe; giving us alſo to underſtand, that a certain Prieſt (as is mentioned in the ſecond chapter of *Gregories* decrees) was ſuſpended from his miniſterie at the Altar, for practiſing to recover a theft by his Aſtrolabe. And indeed, to thoſe who paſſe beyond the bounds of what is warrantable, this I urge; that the ſtarres were never made to juſtifie the dangerous practiſes of wicked impoſtours, nor to give anſwer to the cauſeleſſe curioſities of ſuperſtitious demanders: for neither in ſound Philoſophie, nor in the holy Word of written veritie, can there be any ſuccour found for ſuch deviſes.

Sr Chriſtopher Heydon in his defence of judiciall Aſtrologie. *cap.* 2. *pag.* 54.

And laſt of all whereas I gave notice in my former edition

dition, that the Aſteriſmes or Conſtellations (by reaſon of a ſlow motion which the fixed ſtarres have, ſliding from the Equinoctiall point about one degree in 72 years) are now removed into other ſignes of the divided Zodiack, I ſtill affirm it as a truth: howbeit, in that paſſage of mine, I do willingly retract ſo much as may give any man occaſion to think that therefore the Planets muſt have their houſes, exaltations, triplicities, terms, &c. in other ſignes then in thoſe of old. For although the Aſteriſmes or Conſtellations be removed, yet nevertheleſſe thoſe virtues and influences which proceed from the parts or ſubſtance of heaven remain as they did: and therefore though the nature of the ſignes in the Zodiack may in ſome particulars be either intended or remitted; yet not aboliſhed. And ſo *Ptolomie* alſo mentions: for in that example alledged by the Knight, he teacheth us, that the Aſteriſme, or image of Scorpio, conſiſteth of ſtarres that are chiefly martiall; yet nevertheleſſe, that the ſubſtance of the ſigne doth moiſten and infrigidate: ſo that the places have their virtues, as well as the ſtarres, and are diſtinctly to be conſidered; that thereby the effects may be the better diſcerned. I was therefore formerly not a little miſtaken, to think that the ſignes had quite loſt their old properties; which now I ſee even *Ptolomie* ſheweth cannot be, ſo long as the ſubſtance of heaven remaineth.

Idem, cap. 18, pag. 375. 376. & 377.

Parag.

Parag. 3.

Of that other Office given to the ſtarres; viz. that they were appointed to be heavenly clocks, and remarkable meaſures of Time and the parts thereof.

This Office is laid down in theſe words, *And let them be for ſeaſons, and for dayes, and for years.*

Artic. 1.
Of Seaſons.

IF we take ſeaſons, dayes, and years together, it is no hard thing to ſee how the whole and parts are joyned. For *Tempus* is the whole: and *Annus* is *pars temporis*: *& Dies* is *pars anni*. Not that theſe are the onely parts of time; but becauſe the other do chiefly conſiſt of theſe. Howbeit, ſeeing they be laid downe ſeverally, it is fit they be explained ſunderly. And firſt of Seaſons.

We need not with the Jewes underſtand here their feaſts onely, and anniverſarie dayes of ſolemnitie; for then this diſtinction of ſeaſons had not been in uſe till after the coming out of Egypt: neither is it enough to applie them to the monethly revolution of the moon, or to the ſunnes changing into a new ſigne or partition of the Zodiack. But by the name of *Seaſons*, we ought rather to be led unto thoſe *quatuor anni Cardines*, or foure Quarters of the yeare, when the reviving Sunne croſſeth the Equinoctiall, and again toucheth upon either Solſtice: which laſt, is (as it were) *Solis ſtatio*; becauſe the dayes ſeem to ſtand at a ſtay: and the two other have their names from equall day and night, becauſe the dayes and nights are then of equall length, Sol cheerfully riding in his gold-like fierie Chariot, juſt in the middeſt between the Artick and Antartick Poles. For theſe were thoſe ſeaſons which God again eſtabliſhed for ever, when he renewed that

that face upon the decayed world, which by the impartiall Floud was blemished: saying, (as it is in Gen. chap. 8. 22.) *While the earth remaineth, seed-time and harvest, and cold and heat, and summer and winter shall not cease.*

And as for us, we commonly call these times by the names of *Spring*, *Summer*, *Autumne*, and *Winter*.

Spring. The Spring is a time never unwelcome, nor unwished: for the weather begins then to appear like a pitifull and truly kind-hearted cherisher; and *Sol* ascending, disperseth the superfluous humours, stirreth up the bloud in our bodies, and sap in herbs and trees; clothing the earth with sweet new liveries, and plants with boughs and beauteous branches: nay the harmlesse choristers of the rebounding woods and echoing groves, do then begin to tune again their sugred throats, and ravish revived mortalls with their melodious aires; bidding good morning to the day, and morrow to the morn. For no sooner can *Aurora* wake, and peep above the purple verges of the Eastern hills, but cheerfully they chaunt her out a mirthfull cantilene: whilest in the mean time, sweet-breathing *Zephyrus* playes with the wanton tresses of his late dead, and decayed, but now again revived mistris; and in comely hue doth beauteous *Flora* prank her self, cheerfully coming forth to meet her kind sweet-causing lover. The prettie lambes are now at play, whilest the watchfull shepherd sits piping on an hill to please that queen of his heart; his dearest shepherdesse, whom ruthfully he moveth to grant his suit, and pitie his complaint.

* Or thus, *à virendo; quia tunc omnia virent & florent, &c.*

Ver præbet flores, saith the Poet; and from * *viresco* it may well be said to take the name. For will you heare?

The mealie mountains which were late unseen,
Change now their coats, all into lustie green.

The

The gardens prank them with their flowrie buds;
The meads with graſſe with leaves the naked woods.
Sweet Zephyrus begins to buſſe his Flora,
Swift-winged ſingers to ſalute Aurora:
And wanton Cupid, through this Univerſe,
With pleaſing wounds, each creatures heart 'gins pierce.
„Yea Titans preſence doth again revive
„As well things ſenſible as vegetive.

Partly out of Du Bart.

But next after Spring we reckon Summer; which may well be called the mother of plentie and daughter of bountie. For the earth hath now her lap full of every kind of grain, her belly is bigge and ready to be delivered, that ſhe might thereby enrich the weary labourer, and feed each hungry ſoul. *Formoſa eſt meſſibus Æſtas*, ſaith *Ovid*: Summers beautie conſiſteth in his fruitfull fields of corn.

Summer.

——— For now he crowns his Ceres
With gilded eares, as yellow as her hair is;
Till th' reaper, panting both for heat and pain,
With crooked raſor crops the tufted plain.

In Latine we call it *Æſtas*; which is, becauſe this ſeaſon derives the name *ab æſtu* from the exceeding heat: and ſo alſo doth the Engliſh word *Summer* expreſſe it. For *Summer* is a word taken out of the Germane language; and in the Germane tongue it is ſaid to be *Sunne-mehr* that is, *plus ſolis*, or *more ſunne* then at other times.

And now come to Autumne (for Autumne is the next Quarter) and this is a ſeaſon which bringeth that to perfection, which the Spring and Summer hath but begun. For now the barns are full, the preſſes and fats overflow with an abundance of wine and oyl, and men do now eat the late gathered labours of their hands, and joy

Autumne

joy in the ſurpaſſing plentie that the earth hath brought them. This time is indeed the years very barbour; or (if you will) it is like unto a kind-hearted prodigall, who by little and little gives all away ſo freely that in concluſion there is nothing left him. He takes his name therefore from *Autmno*, which ſignifieth *to make ripe*: for as faſt as he can ſee the fruits ripened or brought to perfection, he yields them up to others. Or elſe it is *Autumne, à bonorum anni augmentatione*; as ſome ſuppoſe.

Th' earth by degrees her lovely beautie bates,
Fills others full with her dear delicates:
The apron and the oſier-basket (both)
Catch dainty fruits to pleaſe each daintie tooth:
Untill at laſt trees, gardens, meads and all,
Are naked ſtript and robbed quite of all.

Winter. But leaving Autumne, look now at Winter: it is a ſeaſon which can boaſt of little. For it lies entrenched with gloomie miſts of night, and weeps almoſt as often as it wants the ſunne, or finds it hid within the compaſſe of a cloſe cloud. Nay ſee but with what a palſie pace it cometh. He that of late was ſweating in the fields, caſting off his clothes, and fainting through heat, is now glad to call for more and thicker garments, and not aſhamed by the help of fire to mitigate the freezing cold. For Winter is like unto an old man with a gray head and white beard; inſomuch that when hoarie-headed *Hyems* doth but bruſh or ſhake his hairs, the trees and herbs, (as I may ſo ſay) in ſtead of leaves, are periwigd with ſnow: Or if he doth but let his churliſh breath blow out upon us, the waters are turned ſoon into a cryſtall cruſt, and without wonder men are ſeen to walk upon it. *Et celſis dependet ſtiria tectis*; yea and the drops hang frozen then at the eaves of houſes. That

That therefore of *Ovid* muſt needs be true, *Igne levatur Hyems.* To which let that * *Bacchi maſſicus humor* be alſo added: For theſe two will now do wondrous well; according to that of the noble Poet,

All lusks in ſloth; and till this quarters end,
Bacchus, and Vulcan both, muſt us befriend.

This ſeaſon is called by the Latines *Hyems*, which ſeemeth to be derived from the Greek word * ὕω, ſignifying to make moiſt or wet: And in Hebrew (as ſome affirm) it is called *Choreph*, coming of the root *Charaph*, which ſignifieth to reproch or diſgrace; becauſe when vvinter cometh, the earth is as it were diſgraced and expoſed to reproch, in being ſpoiled of all its pleaſant greenneſſe, beauty and ſplendour.

And in a word to ſhut up all, thus you may remember theſe ſeaſons, together with their ſundry qualities;

Poma dat Autumnus: Formoſa eſt meſſibus Æſtas:
Ver præbet Flores: Igne levatur Hyems. Ovid.
Autumne gives fruit: And corn makes Summer fair:
Spring ſhews us gayes: Fire helps cold Winters aire.

* A cup of good wine.

* Which in Latine is *Pluo*.

Artic. 2.

Of Daye.

A Day is either artificiall or naturall.

1. The artificiall is from ſunne-riſing to ſunne-ſetting, agreeable to the words of our * Saviour, when he demanded if there were not twelve houres in the day.

* Joh. 11. 9.

Novv this kind of day is not alvvayes equall, but varies according to the ſunnes unequall time of riſing and ſetting: and thereupon the houres likewiſe are to be reckoned according to the dayes proportionable difference; being (even as the dayes) longer in Summer then in Winter.

Alſo

Alſo for this artificiall day, *Joannes de ſacro Boſco* divides it into foure quarters; calling the firſt *rubens*, the ſecond *ſplendens*, the third *urens*, and the fourth *tepens*.

2. And as for that which is a day naturall, it evermore containeth the juſt number of 24 equall houres; in which ſpace of time the ſunne is carried by the motion of the *Primum Mobile* from any one part of heaven untill it comes to the ſame point again.

This kind of day amongſt divers nations hath divers beginnings.

Midnight. England, the 16 Provinces, ſome part of Germanie, the Myſians, and the Romanes, account from midnight untill midnight; becauſe at that time (as is ſuppoſed) our Lord was born: and from hence, as *Verſtegan* thinketh, came the word *Seanight*, being a week of dayes and nights, or a *Sennight*.

Sun-riſing. The Babylonians, Perſians, Norimbergians, &c. begin at ſunne-riſing, (and ſo do our *lawyers in England, ending again at ſunne-ſetting: for he who hath a ſumme of money to pay on a ſet day by bond, neither before nor after ſunne, need tender his money:) Theſe, I ſay, begin at one ſunne-riſing, accounting untill the next; according to that of *Plinie, *Babylonii* (ſaith he) *inter duos ſolis exortus*.

*Which in them or all within the Parentheſis, thought it be here inſerted, is meant of the artificiall day.

*Lib. 2. cap. 79.

Noon. And as for the Umbrians, Arabians, and Aſtronomers, they reckon from noon untill noon again.

Evening. But the Athenians, Jews, Sileſians, Italians, Bohemians, &c. account alwayes from the evening or ſetting of the ſun; beginning their day when the night approcheth and the ſunne departeth, being as it were gone to his bed or weſtern reſt.

1. They who begin from midnight may ſeem to have this warrant, *viz.* that the ſunne is then again returning towards our Hemiſphere; and (as I ſaid before) midnight is that time when the ſunne of righteouſneſſe aroſe to the world. For it is ſuppoſed that Chriſt *was born about the

*Which is but an uncertain ſuppoſition.

the middle of the night, whileſt the ſhepherds were keeping watch over their flocks. The day therefore beginneth from midnight.

2. Again, they who account from the time of ſunne-riſing have this plea, ſaying that the day is fitly to take beginning, when the cauſe thereof, *viz.* the ſunne, doth firſt appear and ſhew himſelf to the inhabitants of the world, calling them out unto their daily labours, and ſummoning them by his beauteous light to ariſe, and leave their ſleepie beds. Therefore when the ſunne ariſeth, the day beginneth.

3. Alſo, they who reckon from noon, ſuppoſe that they ought to account from that time when the ſunne is in the moſt eminent place of heaven, and hath the greateſt number of eyes enlightned by it. And as for Aſtronomicall calculations, this alſo is the fitteſt time, becauſe it falleth alwayes at one and the ſame certaintie. The day therefore beginneth from noon.

*Which they ſuppoſe to be the place it was firſt ſet in when it was made.

4. Laſt of all, they who begin from the ſetting of the ſunne have (as they think) the trueſt and ſtrongeſt plea. For this beginning they ſuppoſe to be agreeable to the whole progreſſe of the worlds creation, and beſt fitteth the divine inſtitution of naturall dayes: in which whether they underſtand Moſes in a right ſenſe I have alreadie ſhewed in the firſt dayes work (pag. 51.) where the Reader may ſee, that the ſecond of theſe foure is indeed the beſt opinion claiming place above the reſt.

Artic. 3.

Of Yeares.

A Yeare, being the chief and moſt uſuall part of time, whereby the ages of men, of the world, and other things are principlly meaſured, is the periodicall revolu-

tion of the ſunne through *Mazzaroth*, or the twelve ſignes of the Zodiack, Job 38. 32. For by the ſunnes unceſſant motion, a ſet number of dayes are as it were wheeled about to terminate one yeare, and to give each ſeaſon his due period of time. And in a true meaſured yeare, there is not alwayes a ſet or certain equalitie: For there is either the great, or the leſſer quantitie. In the greateſt quantitie a yeare hath 365 dayes, 5 houres, 56 minutes, and 53 ſeconds; And in the leaſt quantitie, 365 dayes, 5 houres, 44 minutes, and 38 ſeconds.

But if we reckon according to the courſe of the moon, then a yeare is that ſpace of time wherein the moon, after ſome conjunctions with the ſunne, is again in conjunction with him, not farre from that place where ſhe firſt met him. Or if we reckon by the other ſtarres, it is then that ſpace of time which the ſunne ſpendeth after his departure from any ſtarre, untill he returneth to the ſaid ſtarre again.

And in all theſe, the ſunne hath the chiefeſt prehemineuce, is the onely guide, and moſt remarkable meaſurer. Whereupon I may not omit what I find obſerved by Expoſitours, *viz.* that a yeare hath the name in Hebrew from *Shanah*, ſignifying a *changing* or *iteration*: which is in regard of the ſunnes returning, after a years end, to the ſame point of heaven where it began. And as for the circuit of the moon, which we commonly term a moneth, it is derived from another word ſignifying *to renew*: becauſe in that ſpace the moon is again renewed: neither is it found in any place of Scripture, that theſe names are perverted, or the one of them taken to ſignifie the other; but by the one (ſay they) is meant a yeare, and by the other a moneth. See *Gib.* on Gen. chap. 5. queſt. 2. and *Ainſworth* on Gen. 1. 14.

In Latine the yeare is called *Annus*, becauſe we may ſay

ſay of it *revolvitur ut annulus*. For as in a ring the parts touch one another, circularly joyning each to other; ſo alſo the yeare rolleth it ſelf back again by the ſame ſteps that it ever went; whereupon it came to paſſe that the Egyptians, amongſt other their hieroglyphicks, uſed to paint out the yeare like a ſnake winding her ſelf as round as a ring, holding her tail in her mouth: *Et ſic ſua per veſtigia volvitur annus.* The name likewiſe ἐνιαυτὸς, which it hath from the Greek, is agreeable to the foreſaid derivation. And all this concerning naturall years.

But as for Politicall years, , they be thoſe which are diverſly uſed by divers Nations in their accounting of times: and they differ in lengths according as the computatours fail in skill to regulate them to the motion of the heavens.

That which we now uſe is the Julian yeare, inſtituted by *Julius Ceſar*, who, by the help of *Soſigines* an Egyptian, an expert Mathematician, amended the old Romane yeare, and brought it to that form in which we now have it, making it to conſiſt of 365 dayes, and 6 houres: which 6 houres are not reckoned every yeare, but once every fourth yeare, being then increaſed to the juſt length of a day, which is alwayes inſerted or put in the next before the 6 Calends of March, cauſing the ſaid Calends to be twice repeated: from whence that yeare is called *Biſſextile*, of *bis* and *ſex*, *twice ſix*; or *Leapyeare*, becauſe by this adding of a day, from thenceforth the fixed holydayes, and the like, do as it were skip or leap one day further into the week then they were the former yeare.

Now the mean length of the Tropicall yeare being defined to have no more then 365 dayes, 5 houres, and 49 minutes', ſheweth that this Julian

yeare is ſomevvhat greater then it ſhould be, exceeding the exacteſt meaſure which can be had, by the quantitie of eleven minutes or thereabouts; cauſing thereby by little and little to be an apparent anticipation of the Equinoctiall and Solſtitiall points: inſomuch that the Vernall Equinox, whoſe place at the firſt Councel of *Nice*, was upon the 21 day of March, is now come to be upon the 10 day of March. The reformation of which errour hath been wiſhed for by divers learned men; and in ſome ſort performed by Pope *Gregorie* the 13 (uſing likewiſe in it the help of *Chriſtopher Clavius*, and ſome others) who in the yeare 1582, brought back the Equinoctiall day to the ſame place it was at the ſaid Nicene Councel, by cutting off 10 dayes in the moneth of October, writing in the Calender next after the fourth day the fifteenth day: by means whereof all their moneths begin ten dayes ſooner then ours, as do alſo all thoſe feaſts whoſe place is fixed and not moveable.

Now in this reformation it was likewiſe ordered that the yeare ſhould conſiſt of 365 dayes, 5 houres, and 49 minutes. And, that the Equinox might not be ſubject any more to anticipation in 400 years, they thought it fit to omit three Leap-years; The firſt whereof will fall into the yeare of Chriſt 1715; the ſecond into the yeare 1848; and the third into the yeare 1982, if God ſuffer the frame of the world to ſtand ſo long.

Howbeit in thus doing, although the alteration will be very little, yet the reformation is not exactly true, becauſe there is an inequalitie of anticipation in the Equinoctiall, as the great Maſters in Aſtronomie teach us, being (as they ſay) in ſome ages more and in ſome leſſe. But ſeeing (as I ſaid) the alteration will be very little, if it ever come to that, it is fit the Leap-year be then omitted.

And

And thus am I come now to the end likewiſe of this fourth dayes work, wherein, after my plain manner, I have diſcourſed upon every ſuch thing as is pertinent to the work done in it. Let me therefore concluding ſay with Moſes,

The Eve and Morn confine the fourth of dayes,
And God gives to his work deſerved praiſe.

CHAP. VIII.

Concerning the creatures created in the Fifth day of the World: and they were Fiſhes, and Fowls.

Sect. 1.

Of Fiſhes, their kinds, properties, &c.

NOw follow the works of the Fifth day: which when I conſider, I cannot but admire the harmonious order which the Almightie obſerveth in the whole progreſſe of his creating. For as yet the world was but like an emptie houſe without inhabitants; a ſtately ſtructure, having no moving creature with life and ſenſe to be living in it; not ſo much as a poore flie, a fiſh, or a bird to taſte the goodneſſe of things created and made. But in this and the next day (the building thus framed, and cheer provided) he brought as it were his gueſts to participate of his delicates, alwayes provided that things inferiour ſhould ſerve things ſuperiour: making his beſt work laſt, namely Man, unto whom the other works were put in ſubordination; to ſhew (me thinks) that the end is the perfection of every thing.

And now ſee, the firſt day was for the matter: The ſecond brought it into a better form, ſtretched out the heavens, and lifted up the waters which are above them. The third did not onely ſhew the face of the earth by the

the gathering together of thoſe waters under heaven, but alſo adorned it with herbs, trees, and plants. The fourth beautifies the vaulted roof of the ſparkling firmament with ſunne, moon, and ſtarres. In the fifth and ſixth he makes all kinds of living creatures; furniſhing firſt of all the waters and aire with their inhabitants; and laſt of all the earth.

And for thoſe many creatures in the waters and aire, their creation was effected in this fifth dayes work; ſo that every kind of fiſh, and all kind of birds were now produced. God onely ſaid it, and it was done; as by viewing the text of Moſes will appear: For in all his works *he ſpake the word and they were made, he commanded and they were created.*

But to proceed. We need divide the whole of this day into no more then two parts: The one of Fiſhes, the other of Birds.

That of fiſhes is the foremoſt, and therefore the varietie of thoſe creatures would be firſt admired.

And ſee how Moſes uſhers them. The greater ones are placed in the forefront: For *God* (ſaith he) *made great whales.* And then he proceedeth to adde ſomething concerning the other *ſpecies* of ſmaller creatures living and moving in the water; ſaying, *And every living creature that moveth, which the waters brought forth abundantly after their kind.*

The Whale

Pareus, and other Expoſitours alſo, by the vvord, which is commonly tranſlated *great whales*, underſtand the biggeſt kind of ſea-beaſts and monſtrous fiſhes of the largeſt greatneſſe. And indeed the epithet *great*, is not added to the whale without cauſe: For the word * *tannin* ſignifieth a ſerpent dragon, or a great fiſh: and the whale or great fiſh is the greateſt of all living creatures, as in Job 41. 33. *In the earth there is none like him.* His javvs are likened to doores, verſ. 14. his

* Dr. Will. on Gen.

ſcales to ſhields, verſ. 15. *Out of his noſtrils goeth ſmoke, as out of a ſeething pot or caldron,* verſ. 20. *he maketh the ſea to boil like a pot,* verſ. 31.

Munſt. Coſmog. *Munſter* writeth that near unto Iſeland there be great whales whoſe bigneſſe equalizeth the hills and mightie mountains, which are ſometimes openly ſeen; and theſe (ſaith he) will drown and overthrow ſhips except they be affrighted with the ſound of trumpets and drummes, or except ſome round and emptie veſſels be caſt unto them, wherewith they may play and ſport them, becauſe they are much delighted with ſuch things. But above all, this he affirmeth to be a good remedie againſt ſuch dangerous whales; to wit, that which the Apothecaries call *Caſtoreum*, tempered with water and caſt into the ſea: for by this as by a poyſon they are utterly driven and baniſhed to the bottome.

Olaus Mag. lib. 21. Other Authours mention farre greater whales then theſe: And *Olaus Magnus* writeth, that there are many kinds of whales. For ſome he affirmeth to be rough-skinned and briſtled, and theſe contain in length 240 feet, and in breadth 120. others are ſmooth and plain, and theſe are leſſe, being taken in the North and Weſtern ocean. Some again have jaws with long and terrible teeth of 12 and 14 feet in length: and the two dog-teeth are farre longer then the reſt, like unto horns, or the tuſks of a boar or elephant. This kind of whale hath eyes ſo ample and large, that ſometimes 15, 20, or more men may ſit in the compaſſe of one eye: and about either eye there be 250 horns * *ad rigidam vel placidam, anteriorem vel poſteriorem motionem & ventilationem*; ſerving alſo to defend the eyes, either in a tempeſtuous ſeaſon, or when this fiſh is aſſaulted by any other ſea-beaſt. *Phyſeter* or the Whirl-pool-whale hath a large wide mouth, but round: This is a cruel fiſh to the

*Idem Ibid.

mariners,

mariners, and will ſometimes lift up his head above the ſail-yard, caſting up ſo much water through certain pipes in his forehead, that (as the foreſaid Authour witneſſeth) great and ſtrong ſhips are either compelled to ſink, or elſe are expoſed to great and manifeſt danger. Sometimes again by laying his head upon either end of the ſhip, he drowns it by his over-loading weight.

Some call the Whirl-pool-whales, *Balæna*. But howſoever, *Balæna* is reckoned amongſt the whales, and is differing from the *Priſter* or *Phyſeter* which before I called the Whirl-pool-whale. *Olaus Magnus* ſpeaking of the *Balæna*, ſaith that it hath no gills, but certain *Fiſtulæ* are in ſtead thereof, placed in the forepart of the head, and that it is a fiſh which ſhews great love and affection towards her young ones: For when they are little, being faint and weak, ſhe takes them into her mouth to ſecure them from tempeſtuous ſurges; and when the tempeſt is over, ſhe ſpues them again out into the ſea. A fit embleme this, to teach all ſorts of parents either in Church, Commonwealth, or private families, to provide for, and not deſtroy thoſe under them; as alſo to ſecure them from dangers whenſoever they ariſe.

The love of the Balæna towards her young ones.

An inſtruction from the Balæna concerning carefull parents.

When this *Balæna* and her male-whale accompanie together (for they increaſe by copulation) they ſcatter much of their ſeed in the waters, which being found by the mariners is taken and ſold as a pretious drugge. Some call it *Ambra*, or *Ambergreeſe*, affirming that it is good *contra guttas*, and againſt the palſie and reſolution of ſinews, if it be uſed as an oyntment: good alſo to be drunk down againſt the falling ſickneſſe, and ſwounding; having alſo great power of ſtrengthening the inward parts. It is commonly white, and ſometimes counterfeited with the duſt of *Lignum aloes*, and the ſweet gum *Storax*, ſea-moſſe, and the like; but that which is ſophiſticated may be eaſily known, becauſe it will ſoon be

Ambergreeſe comes from the Whale.

The virtues of this Amber.

How to know whether it be without ſophiſtication.

be diſſolved like wax: whereas that which is without ſophiſtication is more ſolid & leſſe eaſie to be made liquid. Thus affirmeth *Olaus Magnus*: howbeit others write that Ambergreeſe is the ſpawn of the whale. But *Avicen* is perſwaded that it grows in the ſea: and ſome again onely write, that it is caſt up on the ſhore and found cleaving to ſtones there; the fume whereof is good againſt the falling ſickneſſe, and comfortable to the brain.

Munſter writeth that many in Iſeland, of the bones and ribbes of the biggeſt whales, make poſts and ſparres for the building of their houſes: & how great profit proceedeth from the oyl of the whale, no man is ignorant.

The great whale is beholden to the little *Muſculus*.

* *Plinie* writeth of a little fiſh called *Muſculus*, which is a great friend to the whale: for the whale being big would many times endanger her ſelf between rocks and narrow ſtraits, were it not for this little fiſh, which ſwimmeth as a guide before her. Whereupon *Du Bartas* deſcants thus,

*Lib. 9. cap. 62. See alſo *Ælian. Hiſt. de animal. lib* 10. *cap.* 6. *Plutarch. de induſt. animalium.*

A little fiſh that ſwimming ſtill before
Directs him ſafe from rock, from ſhelf and ſhore:
Much like a child that loving leads about
His aged father when his eyes be out;
Still wafting him through ev'ry way ſo right,
That reft of eyes he ſeems not reft of ſight.

An embleme drawn from the Whale and Muſculus; ſhewing that the meaneſt ought not to be contemned.

Which office of that little fiſh, may ſerve as a fit embleme to teach great ones and ſuperiours, that they ought not to contemne their inferiours: for they are not alwayes able ſo to ſubſiſt of themſelves, that they never ſtand in need of their helps who are but mean and baſe in the eyes of greatneſſe: there may come a time when the meaneſt perſon may do ſome good, and therefore there is no time wherein we ought to ſcorn ſuch a one, how mean ſoever he be.

Furthermore, as the whale is befriended by the *Muſculus*,

culus, ſo alſo he is as much infeſted by the * *Ork*; for albeit the *Ork* be leſſe then the whale, yet it is a nimbler fiſh, and cruell withall, having ſharp teeth, with which, as with an admired weapon, ſhe cruelly wounds the whale in the belly, and then floating into a ſhallow place, endangers the whale to follow after.

The Ork dares fight with the whale. *Plin. lib. 9 cap. 6.

The *Sword-fiſh* called *Xiphia*, is little like to any other fiſh: he hath an horrid head like an owle; a deep mouth as if it were ſome immenſive pit; ougly eyes, with a back and a bill like a ſword.

The Sword-fiſh.

There is alſo another great fiſh called *Serra*, or a *Saw-fiſh*, having an hard copled head with teeth like a ſaw, ſtanding in manner of a combe upon the head of a cock: with which, the ſaid fiſh when ſhe wants a prey, cutteth the bottome of ſhips, that the men being caſt away, a prey may be provided by feeding on their carcaſes.

The Saw-fiſh.

The *Monoceros*, or fiſh with one horn, may fitly be called the *Sea-unicorn*: it is a ſea-monſter having a great horn in his forehead wherewith he is able to pierce through a ſhip. Howbeit his crueltie is much hindered, in regard that it hath pleaſed the Almighty to make him very ſlow in motion, whereby thoſe who fear him have advantage given them to flie away.

The Unicorn of the ſea.

The *Sea-elephant* is a fiſh which often goes on ſhore and ſleeps in the rocks, hanging by his two Elephant-like teeth (but both they and his bodie are farre bigger then the land-elephant) and being eſpied by men at ſea, they call to others on the ſhore, by whoſe help, uſing nets and gins and other inſtruments for that purpoſe, they together invelope his bodie, and then ſuddenly aſſaulting and awaking him, he leaps with a violent ruſh as if he would leap into the ſea, but being hampered and entangled by the fiſhers engines, he cannot; he is compelled therefore to yeild himſelf to their mercie: who having

The Sea-elephant.

having killed him do first skin him, then take out his fat; and of his skinne they make thongs, which are sold for a great price, as being very strong and such as will never rot. *Olaus magnus* commendeth his teeth above the other parts of his bodie. *Lib.* 21. This fish thus sleeping and caught suddenly, may be as a fit embleme of those men who coming out of their right way, do fall asleep in sinne: and at last when death awakes them they think to go to heaven, or leap into the wayes of godlinesse, but then it is too late: for they are taken as surely and as suddenly, as was that fool in the Gospell, who thought he had goods laid up for many years.

An embleme drawn from the Sea-elephant, concerning sleep in sinne.

The Crocodile.

The *Crocodile*, seeing it lives in the waters as well, or rather then on land, I reckon among the fishes. They be commonly found about the river *Nilus* in Egypt, and *Ganges* in India; and (as *Munster* writeth in his Cosmographie) it waxeth of a little thing to a very great beast. For his egges are much like unto goose egges, but the young which cometh of them taketh increase to 16 or 18 cubits in length. He liveth almost as long as a man, his back is hard and full of scales; he wants a tongue, but hath cruell teeth, two whereof be farre more terrible then the other, and much longer: his eyes are said to be very dull in the water, but marvellous quicksighted when he is out of it; his tail extends it self to an ample length, and his bitings are so sharp and cruell that they can never be healed: he hath also short feet and sharp claws or nails, wherewith he helps to catch and dismember either man or beast which he can lay hold on: howbeit, it is said that he flies from those that persecute him, and persecutes those that flie him. *Munst.*

A dissembler like unto the Crocodile.

When he hath devoured a man and eaten up all but the head, he will sit and weep over it, as if he expressed a great portion of sorrow for his cruell fact: but it is nothing so. For when he weeps, it is because his hungrie paunch

paunch wants ſuch another prey. And from hence the proverb took beginning, *viz. Lacryma Crocodili; Crocodile teares:* which is then verified, when one weeps cunningly without ſorrow, diſſembling heavineſſe out of craftineſſe: like unto many rich mens heirs, who mourn in their gowns, when they laugh in their ſlieves; or like to other diſſemblers of the ſame nature, who have ſorrow in their eyes, but joy and craftineſſe in their hearts. Diſſemblers.

It is reported by ſome * Authours, that the dogs in Egypt uſe to lap their water running, when they come at *Nilus*, for fear of the Crocodiles there. Which cannot but be a fit pattern for us in the uſe of pleaſures: for true it is, we may not ſtand to take a heartie draught, for then delights be dangerous; howbeit we may refreſh our ſelves with them as we go on our way, and may take them, but may not be taken by them: for when they detain us and cauſe us to ſtand ſtill, then their ſweet waters have fierce Crocodiles: or if not ſo, they have ſtrange Tarantula's, whoſe ſting cauſeth to die laughing. An embleme from the dog and Crocodile. * *Ælian. var. hiſt. lib. 1.* How we ought to uſe pleaſure.

Porcus marinus, or the *Sea-hog*, is a ſtrange kind of fiſh, headed like an hog, with teeth and tuſks like a boar, and a bending back like a creature begotten among ſwine: onely his tail and hinder parts is like to the tail of other fiſhes, and his foure legs are like to the legs of a dragon. Such a fiſh as this was taken up in the Germane ocean, in the yeare of our Lord 1537, as *Olaus* witneſſeth in his 21 book. *The Sea-hog.*

But in *Bermuda*, or in the ſea about the Summer iſlands, they have Sea-hogs of another kind and faſhion, nothing ſo big nor terrible, without legs, good for food, and like to hogs in their heads.

Moreover, *Olaus* again makes mention of another fiſh, which they of *Norvegia* call a *Swam-fiſk*: and this is the moſt greedie and gluttonous of all fiſhes. For it is continually *The Swam-fiſk.*

continually feeding and filling it ſelf, even up to the very mouth, untill he can hold no more; and his prey is upon other the ſmaller fiſhes. This likewiſe is his qualitie and condition; when he is in fear of any danger, he will ſo wind up himſelf and cover his head with the skinne and ſubſtance of his own body, that he is then but like unto a piece of a dead fiſh, and nothing like himſelf. Which feat he ſeldome doth without hurt or damage: For ſtill fearing that there be thoſe about him who will prey upon him and devoure him, he is compelled for lack of meat to feed upon the ſubſtance of his own body; chooſing rather to be devoured in part, then to be conſumed by other more ſtrong and powerfull fiſhes. Theſe and ſuch like are taken for their fat and oyl, rather then for any thing elſe which is uſefull in them.

Covetous cormorants like to the Swam-fiſk.

And unto this fiſh I cannot but liken all greedy cormorants and covetous devourers of other men, being never ſatisfied with the meaſure of their oppreſſions, but lay houſe to houſe, and field to field, untill there be no more place; as the prophet Eſay ſpeaketh, chap. 5. 8. For *they covet fields, & take them by violence; & houſes, and take them away: ſo they oppreſſe a man and his houſe, even a man and his heritage*, Mich. 2. 2. But at the laſt, when they muſt give an account for all the things that they have done, then being oppreſſed by fear, as they oppreſſed others with cruelty, they would be glad to hide their heads, and rather conſume their own ſelves then be given up to the tormentours; ſaying with them in the Revelation, *Let the hills fall upon us, and the mountains cover us from the wrath of him who ſits upon the throne*. But it is madneſſe to run from puniſhment, and not from ſinne. And therefore to poſſeſſe all things, is to poſſeſſe God the poſſeſſour of all things. For omiſſion and commiſſion are a wicked mans confuſion; and oppreſſours

ſours may verily look to feaſt the devil: for while they devoure the poore, the devil devoures them.

Equus marinus, the *Sea-horſe*, is moſt of all ſeen between Britain and Norway. In the Northern ſeas he will ſometimes ſleep upon a piece of ice as it floateth upon the waters: and ſeldome do the fiſhermen deſire to take them in their voyages to thoſe parts, but when they take few Whales. He hath an head like an horſe, and will ſometimes neigh; his feet are cloven like to the feet of a cow, and he ſeeks his repaſt as well on the land as in the ſea: but his hinder parts are like to other fiſhes, and his tail like theirs. *Ola. lib.* 21. *The Sea-horſe.*

There be alſo *Sea-cows* and *Calves*, ſo called becauſe they do much reſemble ſuch kind of creatures living upon land. The *Sea-cow* is a great, ſtrong, and fierce monſter, bringing forth young like her ſelf: ſhe is ſaid to be big ten moneths, and then delivered; ſometimes of two: but oftenеſt ſhe hath but one, and this follows her up and down whitherſoever ſhe goeth. *Olaus* writeth, that the *Sea-calf* is a great devourer of herrings, inſomuch that coming to the ſide of a net wherein they are hanged, ſhe will eat them up one by one untill few are left. And in the Indies the Spaniards uſe to catch a mighty fiſh, having large teats and dugs. *The Sea-cow* and *calf.*

And thoſe who live at *Bermuda*, or the Summer Iſlands, are much beholden to that fiſh which they call the *Turtle* or the *Tortoiſe*; ſhe will come on the ſhore & lay her * egges in the ſands, a buſhell in the belly of ſome one; which being taken in time are very good and wholeſome meat, and ſweet: but if they lie long, the ſunne will hatch them. They have harping irons to catch theſe fiſhes; and being taken, one of them will ſerve to feaſt about fiftie men at a meal. And indeed thoſe ſeas afford varietie of very good fiſh, pleaſant and daintie, as I have heard them ſay who lived there. *The Tortoiſe.*

* Concerning which fiſh, ſee *Elian* alſo, *Var. Hiſtor. lib.* 1.

But

The Mermaids and Mermen.

But above all, the *Mermaids* and *Men-fish* seem to me the most strange fish in the waters. Some have supposed them to be devils or spirits, in regard of their whooping noise that they make. For (as if they had power to raise extraordinarie storms and tempests) the winds blow, seas rage, and clouds drop, presently after they seem to call. Questionlesse natures instinct works in them a quicker insight, and more sudden feeling and foresight of these things, then is in man; which we see even in other creatures upon earth, as in fowls, who feeling the alteration of the aire in their feathers and quills, do plainly prognosticate a change of weather before it appeareth to us, And of these, not onely the poets, but others also have written. The Poets fein there were three *Mermaids* or *Sirens*; in their upper parts like maidens, and in their lower part fishes: which dwelling in the sea of Sicilie would allure sailers to them, and afterwards devoure them; being first brought asleep with hearkening to their sweet singing. Their names (they say) were *Parthenope*, *Lygia*, and *Leucasia*; wherefore sometime alluring women are said to be *Sirens*.

Plin. lib. 9. cap. 5. Olaus Mag. lib. 21. cap. 1. Hist. Nether. lib. 2. pag. 116. Alex. ab Alexand. lib. 3. cap. 8. Genial. Dierum.

A storie of a Sea-woman.

Neither can I but admire what I find recorded in the historie of the Netherlands, of a Sea-woman who was taken up in the streights of a broken dike near to the towns of *Campen* and *Edam*, brought thither by a sea-tempest and high tide, where floating up and down and not finding a passage out again (by reason that the breach was stopped after the flood) was espied by certain women and their servants as they went to milk their kine in the neighbouring pastures, who at the first were afraid of her, but seeing her often they resolved to take her, which they did; and bringing her home, she suffered her self to be clothed, fed with bread, milk, and other meats, and would often strive to steal again into the sea, but being carefully watched she could not: moreover she learned

learned to ſpinne, and perform other pettie offices of vvomen; but at the firſt they cleanſed her of the ſea-moſſe vvhich did ſtick about her. She vvas brought from *Edam* and kept at *Harlem*, vvhere ſhe vvould obey her miſtris, and (as ſhe vvas taught) kneel dovvn with her before the crucifix, never ſpake, but lived dumbe and continued alive (as ſome ſay) fifteen years; then ſhe died. This is credibly reported by the * Authour of that hiſtory, by the vvriter of the Chronicles of Holland, and in a book called the *Theatre of cities*. They took her in the yeare of our Lord 1403.

*Petit. tranſl. by Ed. Grimſton.

Moreover* *Plinie* telleth us of *Tritons*, and *Nereides*, vvhich vvere Mermen, or Men-fiſh of the ſea. And in the yeare 1526 (as the Authour of *Du Bartas* his ſummarie reporteth) there vvas taken in Norvvay, near to a ſea-port called *Elpoch*, a certain fiſh reſembling a mitred Biſhop, vvho vvas kept alive ſome fevv dayes after his taking. And (as the ſaid Authour vvriteth) there vvas one *Ferdinand Alvares*, ſecretarie to the ſtore-houſe of the Indians, vvho faithfully vvitneſſeth that he had ſeen not farre off from the Promontorie of the Moon, a young Sea-man coming out of the vvaters, who ſtole fiſhes from the fiſhermen, and eat them ravv. Neither is *Olaus Magnus* ſilent in theſe things: For in his 21 book, & firſt chapter, having mentioned fiſhes like to dogs, covvs, calves, horſes, aſſes, lions, eagles, dragons, and vvhat not? he alſo ſaith, *Sunt & bellua in mari quaſi hominis figurã imitantes, lugubres in cantu, ut Nereides: etiã marini homines, toto corpore abſolutâ ſimilitudine*, &c. that is, *There be monſters in the ſea as it were imitating the ſhape of a man, having a dolefull kind of ſound or ſinging, as the Nereides: There be alſo Sea-men of an abſolute proportion in their whole body: theſe are ſometimes ſeen to climbe up the ſhips in the night times, & ſuddenly to depreſſe that part upon which they ſit; & if they abide long, the whole ſhip*

*Lib. 9. cap. 5.

ſinketh. Yea (ſaith he) *this I adde from out the faithfull aſſertions of the Norway fiſhers, that when ſuch are taken, if they be not preſently let go again, there ariſeth ſuch a fierce tempeſt, with an horrid noiſe of thoſe kind of creatures, and other ſea-monſters there aſſembled, that a man would think the very heaven were falling, and the vaulted roof of the world running to ruine; inſomuch that the fiſhermen have much ado to eſcape with their lives: whereupon they confirmed it as a law amongſt them, that if any chanced to hang ſuch a fiſh upon his hook, he ſhould ſuddenly cut the line and let him go.* But theſe ſudden tempeſts are very ſtrange, and how they ariſe with ſuch violent ſpeed, exceeds the bounds of ordinary admiration. Whereupon it is again ſuppoſed that theſe monſters are very devils, and by their power ſuch ſtrange ſtorms are raiſed. Howbeit for my part I think otherwiſe, & do much rather affirm that theſe ſtorms (in my judgement) are thus raiſed, namely by the thickening and breaking of the aire; which the ſnortling, ruſhing and howling of theſe beaſts, aſſembled in an innumerable companie, cauſeth. For it is certain that ſounds will break and alter the aire (as I have heard it of a citie freed from the plague by the thundering noiſe of cannons) & alſo I ſuppoſe that the violent ruſhing of theſe beaſts cauſeth much water to flie up and thicken the aire, and by their howling and ſnortling under the waters, they do blow up and as it were attenuate the waves, and make them ariſe in a thinner ſubſtance then at other times; ſo that nature having all theſe helps in an inſtant worketh to the amazement of the mariners, and often to the danger of their lives.

Beſides, ſhall we think that ſpirits uſe to feed, and will be ſo fooliſh as go and hang themſelves on an hook for a bait? They may have occult qualities (as the Loadſtone hath) to work ſtrange feats, and yet be neither ſpirits nor devils:

devils: for experience likewiſe teacheth, that they die either ſooner or later after their taking; neither can a ſpirit have fleſh and bones as they have. But to conclude, *Alexander ab Alexandro*, in the third book of his geniall dayes, hath written one whole chapter (*viz.* the 8) concerning theſe ſea-men, affirming that it is no fabulous report to ſay there be ſuch: he deſcribeth them to be fiſh in their lower parts, and like to men in their upper parts; affirming moreover that they be very venereous and deſirous of women, loving them, or luſting after them. Whereupon he relates a ſtorie of a certain woman who was taken up and carried to the ſea by one of theſe Mermen, *concubitûs cauſâ*, that he might couple himſelf with her. Which monſter the inhabitants took ſoon after; but refuſing meat, he died: and they then made this law, that no woman ſhould adventure to come near the ſea, except her husband were with her. This happened in *Epirus*, a countrey of Greece.

Another Hog-fiſh.

In the kingdome of *Congo*, which lieth in the African part of the world, there is in the river *Zaire*, another kind of hog-fiſh differing from that already mentioned. It is called *Ambize*, *Angulo*, or *Hog-fiſh*. It hath as it were two hands, and a tail like a target, which eateth like pork, and whereof they make lard, and hath not the ſavour or taſte of fiſh. It feedeth on the graſſe that groweth on the banks of the river, and never goeth out: it hath a mouth like the mozell of an ox; and there be of them that weigh five hundred pound apiece. *Purchas.*

The Pontarof.

In the Weſt ſea there is a fiſh called the *Pontarof*, a cruell monſter, that taketh great pleaſure to carrie away young children, loving to play and ſport with them. *Du Bart. Summar. ex Oviedo, lib.* 13.

The Shark.

The fiſhes called *Sharks* are moſt ravenous devourers, and in the waters upon the coaſts of Africa, they have been ſeen with ſix or ſeven other ſmaller fiſhes, guarded

with blew and green, attending like ſerving-men.

The Dolphin.

And omitting many, whether in the new-found world, in the Norway ſeas, or elſewhere, I come now to the *Dolphin*, that king of fiſhes; then whom there is not any which is ſwifter, none more charitable to his fellows, and (which is above all the reſt) none more loving to man. *Plinie* hath written much of this fiſh, in his ninth book, at the eighth chapter; and ſo have others alſo: affirming that he is not onely ſociable and deſirous of mans company, but delighted alſo in ſweet and ſenſe-charming muſick.

Du Bart.

Amongſt the fiſhes that did ſwiftly throng
To dance the meaſures of his mournfull ſong,
There was a Dolphin did the beſt afford
His nimble motions to the trembling chord.

What may be thought of *Arions* ſtorie.

But whether that in the ſtorie of *Arion* be true, I am not able to ſay. Perhaps their cenſure is none of the worſt, who perſwade themſelves it is a fable which was invented by thoſe who had heard of that famous hiſtorie of the Prophet Jonas: for divers ſtories of the Bible have been in this manner changed by the Pagans; as amongſt the reſt, that of Senacherib was very counterfeitly told by *Herodotus*, when he makes mention of a great companie of mice (as he had his relation from the prieſts of Egypt) who came by night and eat off the feathers from his arrows. *Herod. lib.* 2. And the floud of *Deucalion* is related by *Ovid*, as if Noahs floud and that were all one. And the Grecians fable upon the ſunnes going back in Hezechiahs time, that at the* birth of *Hercules* the ſunne made a longer night then at other times.

* *Lucian.*

The Dolphin is loving and kind.

Howbeit this ſcruple may not take away the love of the Dolphin towards man. For beſides thoſe things related in *Plinie*, of a boy feeding a Dolphin, and carried on his back over the waters to ſchool, with ſuch like things in the ſaid Author; others alſo have in a manner written

to

to the ſame purpoſe. And amongſt the reſt, *Ælian* tells a ſtorie of a Dolphin and a boy: this boy being very fair, uſed with his companions to play by the ſea ſide, and to waſh with them in the water, practiſing likewiſe to ſwimme: which being perceived by a Dolphin frequenting that coaſt, the Dolphin fell into a great liking with this boy above the reſt, and uſed very familiarly to ſwimme by him ſide by ſide: the boy at the firſt was fearfull of this his unwonted companion; but through cuſtome he and the Dolphin grew ſo familiar, that they would be friendly antagoniſts, and contend together in ſwimming each by other: inſomuch that ſometimes the boy would get upon the Dolphins back, and ride through the waterie territories of Neptunes kingdome, as upon ſome proud pranſing horſe, and the Dolphin at all times would bring him ſafely to the ſhore again; of which the people in the adjoyning citie were eye-witneſſes, and that not ſeldome. At laſt it chanced that the boy, not carefull how he ſat upon the fiſhes back, but unadviſedly laying his belly too cloſe, was by the ſharp pricks grovving there, vvounded to death. And novv the Dolphin perceiving by the weight of his bodie, and by the bloud vvhich ſtained the vvaters, that the boy vvas dead, ſpeedily ſvvimmeth vvith all his force to the land, and there laying him dovvn, for very ſorrovv died by him. In memorie vvhereof, let theſe ſevv lines be added,

The fiſh would live, but that the boy muſt die:
The dying boy the living fiſh torments.
The fiſh tormented hath no time to crie;
But with his grief his life he ſadly vents.
Oh where is love or grief ſo firm as this?
Of ſuch true love and grief moſt men do miſſe.

A ſtorie to the ſame purpoſe.

The *Sea-fox* is a fiſh that hath a long tail & is ſubtil in his chaſe, having a ſtrong ſent as the Land-fox hath. He uſeth to ſwallow his young into his belly in time of dan-

The Sea-fox.

ger (as the *Balæna* doth) which ſome alſo attribute to the Dolphin. This fiſh and the *Amia* uſe to deceive the fiſherman, either by leaping at, or by ſucking up ſo much of his line, that they may be ſure to bite off the hook. *Ælian. var. hiſt. lib.* 1.

The chaſte Cantharus.

The *Cantharus* is an admired pattern of chaſtitie. *Ælian* * ſpeaketh of the ardent love of this *Cantharus*, and ſaith that between him and the adulterous *Sargon*, is great enmitie: for he will fight as courageouſly for his mate, as *Paris* could fight for *Helena*; being in this the true embleme of a loyall couple, who hate defiled ſheets, loving and living conſtantly together.

* *Hiſt. animal. lib.* 1. *cap.* 26.

The Mullet.

Like unto which is the *Mullet*; who albeit ſhe be a fearfull fiſh (as *Plinie* telleth us, *lib. 9. cap.* 17.) and will hide her head for fear; yet ſeeing her male taken, ſhe followeth after him as farre as ſhe can, chooſing rather to die with him, then to be left her ſelf alone.

The Sargon.

But the *Sargon* is contrarie; for this is an adulterous fiſh, daily changing mates; and not ſo content, uſeth to go on the graſſie ſhore, horning the he-goats who had horns before. For (as * *Ælian* writeth) his luſtfull love towards the ſhe-goat is ſo furious, that the fiſhermen uſe to take theſe fiſhes by covering themſelves with a goats skinne.

* *Hiſt. animal. lib.* 1. *cap.* 23.

An embleme againſt adulterie.

And doth not this fiſh bear a true embleme againſt adulterers? Yes ſurely doth it. For thoſe who make horns on other mens heads, do but make engines to toſſe themſelves to hell.

Alcim. Eneb.

Capra refert ſcortum, ſimilis ſit Sargus amanti.
Qui miſer obſcœno captus amore perit.
The goat, a harlot doth reſemble well;
The Sargus like unto the lover is,
Who (poore wretch!) taken, is condemn'd to hell,
And for his luſt depriv'd of heav'nly bliſſe.

Howbeit.

Hovvbeit, a Ten in the hundred, or a Fox-furr'd-clouted-pated fornicatour, vvho to his tenants vvife is ſometimes a lecherous adminiſtratour, cannot ſee it; neither vvill ſuch believe that vvhores are the hackneys vvhich men ride upon into Devils-ditch: for thither do they gallop, like the deceived *Sargus*, caught by the fiſher in the skinne of a goat.

Hoga is ſaid to be a fiſh as big as a mackerell, or (as ſome ſay) no bigger then a herring. This fiſh hath vvings, vvhich do not ſo much help her by flying to eſcape a farre greater fiſh, as endanger her to the mercileſſe crueltie of another enemie; I mean a certain ſea-fovvl, which vvaits but for ſuch an oportunitie to devour her. Neither can it flie high or farre, or longer then her moiſtened vvings keep vvet; nor yet ſvvimme faſt, having exchanged finnes for vvings. So (ſaith one) have I ſeen men thrive vvorſe that have tvvo trades, then ſuch as have been skillfull or thriftie in one.

A fiſh with wings. It affords a fit embleme concerning thriving.

The birds that vvatch for theſe fiſhes, are in feathers as big as crovvs, but in fleſh little bigger then a ſparrow, and are wiſer to hunt after others then to ſave themſelves; for they be ſo tame that they vvill light upon the hatches of ſhips, and ſuffer themſelves to be taken. So have I ſeen ſome ſo eager to hurt others, that in the mean time they have runne themſelves into as great a danger: and vvell vvorthy are they of ſuch a revvard. For if a treacherous Haman provide a gallovvs for an harmleſſe Mordecai, it is no pitie to ſee the preparer give it hanſell, or firſt hanged. Neither vvill any one mourn to ſee an Achitophels craftineſſe catch himſelf in his ovvn vvilineſſe.

Harm watch, harm catch.

He that will others guide to Charybs ſhelf.
On Scylla's rock may fearleſſe ſplit himſelf.

The *Remora* is a ſmall fiſh vvhich cleaveth to the bottome of a ſhip, and doth as ſtrongly as ſtrangely ſtay it,

The Remora.

called therefore by ſome the *Stop-ſhip*. Of which there can be no more reaſon given, then of the loadſtones drawing iron: neither is it poſſible to ſhew the cauſe of all ſecrets in nature.

The Torpedo.

The properties of the *Cramp-fiſh* are in a manner as ſtrange. For the nature of it is to make the hands of ſuch as touch it benummed, albeit they touch it with a long pole. *Plin. lib. 32. cap. 1.* He is called in Latine *Torpedo*, which is a name proceeding from his benumming qualitie. Some attribute the propertie of this ſecret to the aire which iſſueth from the bodie of the *Torpedo*; ſuppoſing it to be ſo ſubtill, that paſſing along by the line and the pole, it affecteth and afflicteth the arms of the fiſherman. Many Authours have written of this fiſh, as *Plutarch, Plinie, Ælian, Ariſtotle*, and ſundrie others. It is ſaid to be of the form and greatneſſe of a Thornback, and (as I ſaid) of a fell and a banefull breath; wherewith ſhe doth not onely benumme the fiſhers hand, but alſo the neighbouring fiſhes who come near her, that ſo being as if they were dead, ſhe may the more eaſily prey upon them; like many a rich man, ſlain by his heir, in hope to poſſeſſe his lands.

The Barble.

The *Barble* is a fiſh that will not meddle with the bait, untill with her tail ſhe have unhooked it from the hook. This fiſh carries a warie jealouſie alwayes with it, and will not be deceived by all the baits the fiſher can deviſe. *Plutarch*, in his book *De induſtria animalium*, ſetteth down the carefull circumſpection of this creature; affirming moreover that if with the beating of her tail ſhe can do no good, ſhe then opening her mouth a little, doth onely touch the bait with the tip of her lips, and gnaw it round about. Which is indeed a fit emblem against the raſhneſſe of thoſe who will not look before they leap, but are ſo fool-hardie that without either fear or wit they will undertake ſtrange projects.

Againſt raſhneſſe.

and

and believe every fair word; as if the graſſe had no ſnakes, or a ſugred pill no inward bitterneſſe.

The Scolopendra.

The *Scolopendra* is a fiſh more credulous, but of as ſtrange a propertie; For, as *Plinie* writeth in his ninth book and 43 chapter (to which * *Ælian* is not oppoſite) this is a fiſh which refuſeth not the bait, but feeling himſelf taken with the hook caſteth out his bowels, and then having looſed the hook ſwalloweth them again.

*De animal. lib. 13. cap. 23.

An embleme from this fiſh, of ſwallowing the baits of ſinne.

Now this is a fit embleme of all ſuch as have ſwallowed down the deceitfull baits of ſinne; aptly affording this inſtruction, that if they will be ſafe and ſecure, they muſt *ſearch themſelves*. For if thoſe baits which we have ſwallowed, through the ſeeming good of deceitfull ſinne, if they, I ſay, be not vomited up again, there is a hook which will hold us faſt, and hale us headlong into miſerie.

The Sturgeon.

The *Sturgeon* is a fiſh whoſe ſcales turn backwards, and therefore he ſwimmeth againſt the ſtream. So have I ſeen ſome effect their projects by means and wayes, contrarie to the common courſe of men. Nay, ſome have been ſo happie as to thrive in reſpect of themſelves, when others could not but judge that the world muſt needs go backwards with them.

An embleme concerning thriving.

The Calamarie.

The *Calamarie* is ſometimes called the *Sea-clerk*, having as it were a knife and a pen. Some call him the *Ink-horn-fiſh*, becauſe he hath a black skinne like ink, which ſerveth him in ſtead of bloud. And of theſe fiſhes there be more kinds then one: for the *Cuttle* hath alſo an inkie juice in ſtead of bloud. You may ſee three figures of this fiſh in the fourth book of *Geſners* hiſtorie of fiſhes; and * *Plinie*, ſpeaking of theſe fiſhes, affirmeth that both male and female, when they find themſelves ſo farre forth diſcovered, that if they cannot be hid they muſt be taken, do then caſt this their ink into the wa-

* *Lib. 9. cap. 29.*

ter;

ter; and ſo by colouring it, they obſcure and darken it; and the water being darkened they eſcape.

For through the clouds of this black inkie night,
They dazling paſſe the greedie fiſhers ſight.

The purple.

The *Purple* is a kind of ſhell-fiſh, from whence is gathered a moſt neceſſary juice for the dying of ſilks and ſuch like things. This juice is in the middeſt of her mouth and jaws, and is to be had in the ſpring time; for at other times ſhe is barren and wants it. She loſeth her life with the loſſe of this juice, and liveth no longer then this abideth in her: Wherefore *Munſter* in his coſmography giveth this counſell, to take them alive; adding moreover that ſhe is a great devourer of little ſhell-fiſh. She hath (ſaith he) a long tongue which is alwayes moving; and by this ſhe getteth her prey. Some ſay that they differ in colour according to their nearneſſe or farneſſe from the ſunne: whereupon it comes to paſſe that in Africa they have as it were a violet colour, and at Tyrus a redder colour.

The Polypus.

Polypus is a fiſh with many feet and a round head near unto them; it is a great enemy to the Lobſter: and (as *Ælian*, and other Authours write) they can often change their colour, and by that project devoure other fiſhes. Their uſe and cuſtome is to lie lurking cloſely by the ſides and roots of rocks changing themſelves into the colour of the ſame thing unto which they cleave: inſomuch that they ſeem as a part of the rock: whither when the fooliſh fiſh ſwim, they fall into danger: for whileſt they dread nothing, theſe *Polypodes* ſuddenly prey upon them and devoure them. And indeed this is the conſtancie and unfeared treacherie, which is often found in many men, who will be any thing for their ovvn ends, and nothing vvithout them; ſparing none for their ovvn purpoſes nor loving any but to effect them. Their heads indeed may vvell be near their feet: for they prize the traſh

Treacherous perſons like to the Polypus.

traſh we trample on, farre above the joyes of heaven; elſe would they never work their fond purpoſes by deceitfull means, and damage others to help themſelves.

The pearl-fiſh.

Amongſt the ſeverall ſorts of ſhell-fiſhes, the gliſtering *Pearl-fiſh* deſerves remembrance; not onely in reſpect of her ſelf, but alſo in regard of the *Prawn*, another fiſh and her companion: for between theſe two there is a moſt firm league of friendſhip, much kindneſſe, and ſuch familiaritie as cannot but breed admiration in the reader. They have a ſubtill kind of hunting, which being ended, they divide their prey in loving manner: for ſeeing they one help the other in the getting of it, they likewiſe joyn in the equall ſharing. And in few words, thus it is: (of which ye may reade in *Plinie*, *Plutarch*, *Ælian*, &c.) When the *Pearl-fiſh* gapeth wide, ſhe hath a curious gliſtering within her ſhell, by which ſhe alloureth the ſmall fry to come ſwimming into her: which when her companion the *Prawn* perceiveth, he gives her a ſecret touch with one of his prickles; whereupon ſhe ſhuts her gaping ſhell and ſo incloſeth her wiſhed prey: then (as I ſaid) they equally ſhare them out and feed themſelves. And thus day by day they get their livings, like a combined knot of cheaters, who have no other trade then the cunning deceit of quaint couſenage; hooking in the ſimpler ſort with ſuch ſubtill tricks, that be their purſes ſtuft with either more or leſſe, they know a way to ſound the bottome, and ſend them lighter home; lighter in purſe, though heavier in heart.

The Pearl and the Prawn emblemes of cheating.

The Gilt-head.

The foreſaid Authours make mention of the *Gilt-head* or *Golden-eye*, which helpeth the one the other out of a ſnare, or from off an hook: for if the inſnared fiſh cannot help himſelf by looſing the ſnare with his tail, then will his companion put to his mouth, and ſet him free. Or if the one ſee the other hanged on a hook, it may

may be easily observed how his free mate will skip at the line, and never leave till he have broke it off. Which may serve well to teach us, that we ought not to leave our friends in danger, but do the best and utmost that we can to set them free. For a friend is never known till such an occasion shall discover him: at other times we have friends enow.

An emblem of friendship.

The Plaice

The *Plaice*, if it be well grown, and something thick, is said to be a passing good fish: It takes the name from *Placeo, to please*, because it pleaseth the palate.

The Sole & Whiting

That fish which we call the *Sole* is a very wholesome fish: And so is the *Whiting*, often entertained in the court.

Gurnard.

I have heard the *Gurnard* likewise much commended.

Conger.

But the *Conger* is hard of substance, and therefore not easie to be digested.

Salmon.

And so also is the *Salmon* hard of digestion, although it be a pleasant fish, and very sweet, especially the belly. Whereupon it comes to passe that we do not eat it hot, or presently after it is boyled.

Thornback.

The *Ray* or *Thornback* is scarce so wholesome as other fish; for Physicians write that it makes men subject to the falling evil, by reason that it is a fish full of superfluous juice. Howbeit the pricks which grow without upon the skinne, if they be pulled up by the roots, dried, made into powder, and given fasting in White or Rhenish wine, is an excellent medicine to avoid gravell and to break the stone.

A medicine against the stone.

Herring.

Herring is a fish common and cheap, very dangerous if they be not moderately eaten fresh; for we often see that want of care in the eating of them, casteth many into fevers. And as for Red Herrings and Red Sprats, they must needs have little wholesomenesse or nourishment in them: for, if we may believe the learned, they

they give as good nouriſhment to the bodie, as ruſtie Bacon.

We reade that in the river *Ganges* are *Eeles* of an extraordinarie bigneſſe and length. This fiſh is never better moved from his neſt then in a thunder. They be not bred out of ſpawn as other fiſhes, but from the ſlime and dirt of the earth, as the common opinion goeth: and of all fiſh es which are toothſome, theſe are the leaſt wholeſome. They breed agues, ſtop and hurt the voice, procure the ſtone by reaſon of their great ſlimineſſe, and do alſo diſpoſe a man to the gowt by breeding ſuch matter as brings pain in the joynts. But know that after *Eeles* and *Lampreys*, vve ſhould drink good ſtrong wine; and indeed generally with all kinds of fiſh, wine is very wholeſome. *Eeles.*

The *Shad* is never in ſeaſon but in the ſpring; for at other times it is full of bones. *The Shad.*

And in the choice of fiſh this is a rule, that ſuch as have ſcales and finnes are beſt: for many ſcales and finnes betoken the pureneſſe of their ſubſtance, as the phyſicians tell us.

The *Gogion* is a daintie fiſh, and found aſwell in the ſea as in freſh waters; of which there be ſundry ſorts: but the beſt live in ſandie places, and about rocks. *The Gogion or Gudgion.*

The *Tench* is commonly called the Phyſician of other fiſhes: for when they be hurt, they heal themſelves again by touching the *Tench*, finding the ſlime of his body to be as a ſoveraigne ſalve. *The Tench*

The *Perch* uſeth to wound others with his ſharp fins, whereupon the *Pike* or *Pickerell* dares not devoure him. Both theſe give the body pure nouriſhment, by reaſon of their firm and hard ſubſtance. *The Perch and Pike.*

The *Roch*, *Dace*, *Chevine*, *Bream*, *Smelt*, and *Carp* are good. But the *Trout* is admirable: for this is ſo found in nouriſhment, that when we would ſpeak of one who is found indeed, we ſay that he is as ſound as a *Trout*. This *The Trout*

is

is in ſome kind a fooliſh fiſh, and an embleme of one who loves to be flattered: for when he is once in his hold you may take him with your hands by tickling, rubbing or clawing him under the bellie.

I will not ſay who elſe is like this fiſh, for fear I ſhould offend ſome ſqueamiſh dame: but let not her anger ſhew her wantonneſſe; and ſo we are both charmed to hold our peace: ſhe, to ſalve her own credit; and I, to end this preſent ſection: wherein I do confeſſe I might have ſpoken of ſundry other fiſhes, but I had rather ſend my reader to *Geſner* and ſuch other ample Authours, then tire him with my relations.

Sect. 2.

Containing the ſecond part of this fifth day; which is of Birds, or Fowl, flying in the open firmament of heaven.

FRom fiſhes I muſt come to birds, from the water to the aire, and teach my pen to flie a while with the feathered fowls, as before it was ſwimming with the fearfull ſilent fiſh.

And now why God hath joyned the creation of fiſh and fowl together, may without curioſitie be obſerved; to wit, becauſe he vvould in every work and part thereof continue an harmonious order. Great is the likeneſſe between fiſh and fowl, whether it be that we conſider the naturall place wherein either of them live, or that we conſider their reſemblance in parts, or their manner of motion. For firſt, the place of fiſhes is the water; the place of fowls the aire: both which are diaphanous, clear, moiſt, and eaſie yielding elements. Secondly, that which finnes be to fiſhes, wings and feathers are to birds. And thirdly, that which ſwimming is to fiſhes in

in the waters, flying is to birds in the aire. The one moves himſelf by his finnes, the other by his wings. The one cuts and glideth through the liquid aire, the other ſhoots and darteth through the humid water. The one makes paths in that ſubtil concave between heaven and earth, the other draws furrows in the ploughed ſea: and both tracts are indiſcernible; either place again cloſing & no longer open then their native dwellers flit through their yielding gates.

The Eagle

And firſt of all methinks I ſee the loftie *Eagle*, king of birds, towring on high in the heaven-aſpiring aire.

And amongſt all fowls, the Eagle onely can move her ſelf ſtraight upward and downward, perpendicularly, without any collaterall declining. *Munſter.* This bird is commended for her faithfulneſſe towards other birds in ſome kind, though ſometimes ſhe ſhew her ſelf cruell. They all ſtand in awe of her: and when ſhe hath gotten meat ſhe uſeth to communicate it unto ſuch fowls as do accompany with her; onely this ſome affirm, that when ſhe hath no more to make diſtribution of, then ſhe will attach ſome of her gueſts, and for lack of food, diſmember them. Her ſight is ſharp and quick, inſomuch that being in the higheſt part of the aire, ſhe can eaſily ſee what falleth on the land, and thereupon the ſooner find her prey. It is ſaid that ſhe can gaze upon the ſunne and not be blind, and will fight eagerly againſt the Dragon: for the Dragon greedily coveting the Eagles egges, cauſeth many conflicts to be between them.

The Poets have called her Joves bird, and Jupiters armour-bearer, becauſe ſhe is never hurt with lightning. She is a bird tenderly affected towards her young, inſomuch that ſhe will endanger her own bodie to ſecure them, bearing her young ones on her back, when ſhe perceiveth them to be aſſaulted with arrows. Hares. Hars Geeſe and Cranes, are ſuch creatures as this bird uſeth

uſeth to prey upon. And for her practiſe in killing the Hart, thus it is: when ſhe laboureth to drive the Hart headlong to ruine, ſhe gathereth (ſaith *Munſter*) much duſt as ſhe flieth, and ſitting upon the Harts horns, ſhaketh it into his eyes, and with her wings beateth him about the mouth, untill at laſt the poore Hart is glad to fall fainting to the ground.

The Eagle buildeth her neſt in the rocks and high places; and the propertie of the young Eagle is, when ſhe findeth a dead carcaſe, firſt of all to pick out the eye. And ſo (ſaith one) do all ſeducing hereticks, firſt put out the right eye of knowledge, that thereby they may the better leade along their ſeduced Proſelites.

Parents ought not to bring up their children in idleneſſe; by an example taken from the Eagle.

And note that although the Eagle be very tender over her young, yet when they be able to flie of themſelves, ſhe caſteth them out of her neſt; becauſe ſhe would have them ſhift and no longer depend upon their damme. Which is a good example, ſaith the ſame Authour, for domeſticall diſcipline; namely, that parents ſhould not bring up their children in idleneſſe, but even from their youth exerciſe them in honeſt labour, training them up to ſome vocation.

Moreover, *Ariſtotle* writeth, that when the Eagle waxeth old, the upper part of her bill ſo groweth over and increaſeth, that in the end ſhe dieth of famine. But *Auguſtine* obſerveth further that when the Eagle is thus overgrown, ſhe beateth her bill upon a rock, and ſo by ſtriking off her cumberſome part, ſhe recovereth her ſtrength and eating; to which the Pſalmiſt alludeth, Pſal. 103. 5. *Which maketh thee young and luſtie as an Eagle.*

The Phenix.

* Lib. 10. cap. 2.

The *Phenix*, ſaith *Munſter*, is a noble bird, and is but one in the world. *Cornelius Valerius* (whom * *Plinie* mentioneth) doth witneſſe that when *Quintus Plautius* and *Sex. Papinius* were Conſuls, one was ſeen to flie into

into Egypt. And *Tacitus* alſo writeth, that when *Lucius Vitellius* and *Paulus Fabius* were Conſuls, another was likewiſe ſeen to flie thither: and yet not another, but the ſame rather; for there was not above two years difference in the time of this appearance; *Vitellius* and *Fabius* being Conſuls in the yeare of the citie 786, and *Plautius* with *Papinius* in the yeare 788. * *Dion* was perſwaded that this bird thus ſhewing her ſelf, did betoken the death of *Tiberius*: but our countreyman * Mr *Lydiat* rather thinketh, that it pointed out the time when Chriſt, that true Phenix, did both die and riſe again: and ſo alſo thinketh *Carion*, in his Chron. *lib.* 3.

Annal. l. 6.

*Lib. 58.

* *Lib. de comput. temp. & alio quodam lib. cap. 22.*

This bird (if we may believe what is written) is about the bigneſſe of an Eagle, having a glittering brightneſſe in the feathers of her neck, like unto gold; in other parts purple, with an azured tail, but ſo as in ſome places it is of a roſe colour: her head hath on it a plume or tuft of feathers. Some ſay ſhe liveth five hundred yeares; others give her ſix hundred and ſixtie: and, as *Plinie* writeth, this bird hath her ſettled habitation in *Arabia Felix*. When ſhe waxeth old, ſhe is ſaid to make her a neſt of Caſſia, with branches of the frankincenſe tree, into which ſhe putteth other odours, and ſo dieth upon them: and then, out of her bones and marrow, there ſpringeth firſt a little worm, which afterward comes to be a young Phenix.

Howbeit many think that all this is fabulous: for (beſides the differing reports vvhich go of this bird) vvhat *ſpecies* or kind of any creature can be rehearſed, vvhereof there is never but one? and vvhereas the Lord ſaid to all his creatures, *Increaſe and multiplie* this benediction ſhould take no place in the Phenix vvhich multiplieth not. And again, ſeeing all creatures vvhich came into the Ark, came by tvvo and tvvo, the male and female, it muſt needs follovv that the Phenix by this means

 periſhed.

periſhed. And ſo ſaith one, *As for the Phenix, I (and not I alone) think it a fable, becauſe it agreeth neither to reaſon nor likelihood but plainly diſagreeth to the hiſtorie of the creation and of Noahs floud, in both which God made all male and female, and commanded them to increaſe and multiplie.*

The Griffon.

The *Griffon* is a creature (if there be any ſuch, for many doubt it) which whether I may reckon amongſt the birds or beaſts, I cannot tell. Howbeit as I find him marked by * *Ælianus*, he is thus deſcribed; namely that he is a kind of beaſt with foure feet, keeping moſt of all in *India*, being as mightie in ſtrength as a lion: he hath wings and crooked talons, black on the back, and in the forepart purple. His wings be ſomewhat white, his bill and mouth like an eagles bill, his eyes fierie; he is hard to be taken except he be young, he maketh his neſt in the high mountains, and fighteth with every kind of beaſt, ſaving the lion and elephant: he diggeth up gold in deſert places, and giveth repulſe to thoſe that come near him. But (as I ſaid) ſome doubt whether there be any ſuch creature or no: which, for my part, ſhall be left to every mans libertie.

* See alſo *Munſt. Coſmog.*

The Oſtrich.

The *Oſtrich* is compounded as it were of a bird and a beaſt, and is eſpecially found in *Africa*: he is partly like a camell in his long legs and feet, partly like a ſparrow in his head and bill, though much greater. Some ſay his head is covered with ſmall hairs, his eyes be groſſe and black, his neck is long, and (as I ſaid) his bill is ſhort and ſharp like a ſparrows bill, and his feet hath as it were a bipartite hoof. He is ſaid to exceed the height of a man on horſeback; and as for his wings they help him little: howbeit we make much uſe of his feathers, as is well known. And in one thing he is like the woodcock; for hideing his head he never fears his bodie.

Job

Job ſpeaketh that he is forgetfull; for when this bird hath laid her egges (which ſhe hides in the ſand, and are hatched by the ſunne) ſhe forgetteth them, untill the young come forth, and then the males are forced to feed and cheriſh them. So have I ſeen many mothers refuſing to nurſe their children; and, if they could, would have others likewiſe bear them: but putting them forth, I believe many periſh for want of care and due attendance: for it is not poſſible that a nurſe ſhould have that tender affection which belongs to a mother; and many times, with the nurſes milk, the children ſuck the nurſes vices. Neceſſitie therefore, and a prudent choice, ſhould ſeek out nurſes; as we ſee it Gen. 21. 7. Moreover it is ſaid, that this bird is of ſuch ſtrong digeſtion that ſhe will eat iron: and when ſhe ſeeth that ſhe cannot avoid taking, ſhe caſteth ſtones with her claws againſt her followers, by which ſhe often hurteth them. Job. 39. 14, 15.

The Oſtrich likened unto men who will not nurſe their children.

Ibis is a tall ſtrong bird, having a bill of great length; he doth exceeding much good in deſtroying ſerpents. Theſe birds live in *Egypt*, and the ſerpents brought out of *Lybia* thither, by the Southern wind, are killed by them, *Plin. lib.* 10. *cap.* 28. See alſo afterwards in the *Stork*. *Ibis.*

The *Kite* is well known: ſhe is a fowl which flieth ſoftly untill ſhe eſpie her prey; ſhe hath quick eyes, will flie high into the aire in hot clear weather, and by the turning of her tail ſhe directs her bodie, even as a great lazie ſhip is ordered by the helm. *Ariſtotle* obſerves that all ſuch fowls as have talons, cannot devoure any meat but fleſh: & if any other food be thruſt into their mouthes they cannot eat it. *The Kite.*

There is great enmitie between the kite and the raven, it being an uſuall thing for the kite to robbe the raven, as being better in talons and flying. So have I ſeen the gripers and catchpoles of this world deſtroy one

Emblemes from the Kite, concerning the covetous gripers of this world.

another, the lesse mightie alwayes devoured by the stronger and more potent. And (me thinks) the kites feeding upon carrion, is a fit embleme of the envious person, who rejoyceth in the fall of others: for there be many in the world who care not what men fall, so they may rise; building their own houses out of the bloud and ruine of others.

Envie shadowed forth.

Howbeit, it is observed by *Aristotle*, that the kite being a ravenous bird, bringeth forth but two young ones at a time; wherein nature hath been very provident and carefull, to suffer such ravenous fowls to increase no faster. And so (saith one) it is commonly seen in the world, that many rich cormorants (or corn-vorants rather) are either childlesse and have no children, or else they abound not in many; and yet we can see no end of their scraping, pinching, and oppressing. *There is one alone* (saith Solomon) *& there is not a second, which hath neither sonne nor brother, & yet there is no end of all his travell*, Eccles. 4. 8.

The Raven

The *Raven* also is a fowl given to rapacitie and devouring of flesh, great of bodie, slow in flight, sharp in sight, frequenting much the countreys of *Italie, Spain, Egypt*, and about the Alps. But this (saith *Munster*) is to be understood of the great kind of ravens.

This fowl doth greatly above all others covet mens carcases, and (as some think) by a singular instinct and naturall gift, it hath understanding of mans death, presaging it a few dayes before. But whether that be true or not, this is certain, that it haunteth places of battell, with solitarie ruines; and like to the young eagles, it picketh out the eye of a dead corps first of all, because (as some suppose) he seeth his own image in the clearnesse of the eye; and so like coveteth the like. The fox and this bird are very friendly, but both at enmitie with the hawk; that being the chiefest cause of their familiaritie.

An emblem from the Fox and Raven, concerning companions in [illegible] &c.

ritie. And ſo have I ſeen one man love another the better, for hating him whom he abhorreth: or one, like the fox, will ſometimes plot anothers ruine, that the other, like the raven, may prey upon him.

Munſter telleth us that the skinne of a raven well tewed and dreſſed with the feathers on it, is exceeding good to be laid to a weak and fickly ſtomach; for it greatly helps digeſtion.

Good to help digeſtion.

And again, ſhe is noted for an unkind bird to her young ones, * expelling them out of their neſt before their full and compleat time, leaving them to their ſelves before they are able to ſhift; and ſo crying for food, God by his providence provideth for them: whereupon it is ſaid, that *the young ravens crie unto God:* or, *which feedeth the young ravens that call upon him,* Pſal. 147. 9. And in this act, theſe and the like birds are emblemes of ſuch as want naturall affection. And indeed the young ones afterwards prove as cruell to their dammes: for when they be old, and have their bills overgrown, they die of famine, not ſharpning their bills again, by beating them on a ſtone, as the eagle doth: * neither will their young ones help them, but rather ſometimes ſet upon them, when they are not able to reſiſt. It is not good therefore to uſe children too harſhly in their minoritie, leſt when *Senes* come to be *Pueri* again, they find as little favour at their hands as they ſhewed before. And of this, parents, maſters, tutours, and guardians ſhould be carefull; learning their leſſon from theſe unnaturall birds. But more I may ſpare to adde: for the well affected are alſo well inſtructed to put a difference between fooliſh cockering, and cruell handling: knowing with * Solomon that *Where the rod is ſpared, the child is ſpoiled*: and with Paul confeſſing likewiſe, that they ought not to be bitter to them, *leſt thereby they provoke them to wrath,* Epheſ. 6. 4. Moreover let

* *Plin. lib. 10. cap. 12.*

Againſt ſuch as want naturall affection.

* *Ælian. de animal. lib. 3. c. p. 43.*

Children ſhould not be uſed too harſhly in their minoritie.

* Prov. 13. 24. and chap. 23. 13.

it be obſerved that ſome Authours affirm there is alſo the raven of the ſea, which is like in proportion to the other raven, onely differing in colour, as being white: Now *Ariſtotle* thinketh that this happeneth by reaſon of ſome paſſion or accident in the generation. Neither (as is thought) doth the raven conceive by conjunction of male and female, but rather by a kind of billing at the mouth, which * *Plinie* mentioneth as an opinion of the common people; ſaying, *Ore eos parere aut coire vulgus arbitratur: ideóque gravidas, ſi ederint corvinum ovum, per os partum reddere*; which is very ſtrange, if it ſhould be true: and therefore *Ariſtotle* denieth it; onely thinking that their billing or kiſſing is but like unto that amongſt the doves. And as for the Engliſh name *Raven*, given to this bird, it is ſo called of *ravening* and *devouring*: In Greek it is κόραξ of κράζειν, which ſignifieth *Crocitare, to croke*; and in Latine, *Corvus*; under which name we comprehend the crows as well as the ravens.

* *Lib. 10. cap. 12.*

The egges of raven are naught for big-bellied women.

The ancient Emperours of Rome, and other heathen Princes, had their Soothſayers, and beholders of birds: now theſe gave great heed to the ravens, and would diligently look upon their eyes; marking, in time of warre, to what part they turned: for they ſuppoſed that the raven did preſage which ſide ſhould periſh in battell; and would alwayes therefore have her eye fixed or turned that way, or to that partie; as it were ſhewing her longing deſire to be feeding on their carcaſes. Which is ſomewhat confirmed by that which *Plinie* writeth of the ravens flying out of *Athens* and *Peloponneſus*; ſaying, *Nam cùm Medìæ hoſtites occiſi ſunt, omnes è Peloponneſo & Attica regione volaverunt. Plin. ibid.* Which flocking to the fight was for their fat prey, as though there had been in them ſome ſenſe of the preſent action.

Furthermore, this I find again recorded by *Plin. lib. 10. cap. 43.* that when *Marcus Servilius* and *C. Ceſtius* were

were Conſuls, there was a ſolemne funerall of a raven celebrated at Rome, upon the fifth calends of April: and this being ſo near the time of our Saviours paſſion as it was, did (as ſome obſerve) not unfitly ſhadow forth the devils funerall, and deſtruction of his kingdome among the Gentiles. For as the raven delighteth in ſolitarie or deſert manſions, Iſai. 34. 11. ſo doth the devil walk through deſert places, as we ſee it, Matth. 12. 43. In which reſemblance, he is fitly called the devils bird: and this funerall may as well prove the time of Chriſts death and buriall, as *Dions* Phenix, appearing about the ſame time, was uſed by *Carion*, and Mr *Lydiat*, to ſhew the yeare of his reſurrection.

The Pelican.

The *Pelican* is that bird which * *Plinie* calleth *Onocratalus*, and is much like the ſwanne in ſhape and proportion, excepting in the wideneſſe of his gullet and capacitie of his maw. Of this fowl there be two ſorts; one that liveth by the waters, another which is the Pelican of the deſert.

* *Lib.* 10. *cap.* 47.

This is a melancholy bird, and takes the name of *Pelican*, from the Greek * πελεκᾶν, ſo called of *ſmiting* or *piercing*: which is in regard that by piercing his breaſt he reviveth his young ones with his own bloud, when they are bitten and killed of ſerpents: or having killed them with his bill, he reviveth them again by his bloud after three dayes. Or elſe this name belongs unto him from piercing the ſhelfiſhes and picking out their meat to feed his young. For, according to the teſtimonie of *Ariſtotle* the dammes uſe to catch ſuch fiſh and ſwallow them into their ſtomachs, and when they have there ſo warmed them that their ſhells may gape, they do again caſt them up; and ſo pick out their meat in an eaſie manner. In like ſort have I ſeen thoſe who have done more by policie, then others or they could do by ſtrength; neither is violence alwayes the readieſt way: for

* Πελεκᾶν, comes from πελεκάω, *perforo*, to beat or pierce.

Policie is better then ſtrength.

ſometimes art may be more then arms, and gentle uſage have povver to charm, vvhen rigour helpeth to enrage.

The Stork.

The *Stork* is a famous bird for naturall love to his parents, vvhom he feedeth being old and feeble, as they fed him being young: the Egyptians and the Theſſalians ſo eſteemed this bird, that there vvas a great penaltie laid upon any that ſhould kill him. His Engliſh name *Stork* comes from στοργὴ in Greek, vvhich is *Amor* in Latine; proceeding from his forenamed kindneſſe and naturall love to his damme; being alſo humane and loving to mankind, delighting to build in the tops of houſes and chimneys, as is uſuall to be ſeen in Germany; vvhereby it is evident, that he loveth the ſocietie of man: vvhich (ſaith one) ſhevveth their diſpoſition to be unnaturall, vvhich do ſhun the companie of men, and of a ſuperſtitious mind, retire themſelves into deſert and ſolitarie places, as Hermites, Anchorites, and ſuch like. Dr *Wil.* on Levit.

Plin. lib. 10. cap. 23.

There ought to be ſocietie amongſt men.

And novv the reaſon vvhy he vvas in ſuch eſteem in Egypt and Theſſalie, vvas for his great ſervice he did them in killing of ſerpents, and other venemous things. *Plinie* calls him *Ciconia*: and from the Stork Ibis, men firſt learned to purge by clyſter; for vvith his bill he conveyeth ſalt vvater up into his bodie belovv, and ſo purgeth himſelf.

From whence men firſt learned to purge by clyſter.

The Heron.

The *Heron* or *Hernſew* is a fovvl that liveth about vvaters, and yet ſhe doth ſo abhorre rain and tempeſts, that ſhe ſeeketh to avoid them by flying on high. She hath her neſt in very loftie trees, & ſhevveth as it vvere a naturall hatred againſt the goſſehavvk and other kind of havvks: and ſo likevviſe doth the havvk ſeek her deſtruction continually. When they fight above in the aire, they labour both eſpecially for this one thing, that the one might aſcend and be above the other: Novv if the havvk getteth the upper place, he overthrovveth and vanquiſh-

vanquiſheth the heron with a marvellous earneſt flight; but if the heron get above the hawk, then with his dung he defileth the hawk and ſo deſtroyeth him: for his dung is a poyſon to the hawk, rotting and putrifying his feathers.

This bird is *Avis furibunda, a furious bird*; and ſo in Latine ſhe is called *Ardea*, of *ardeo, to burn*: chiefly becauſe ſhe is an angrie creature, or becauſe ſhe is greatly enflamed with luſt; or elſe becauſe the dung of this bird doth as it were burn or conſume what it toucheth.

Of *Hawks* there be many and ſeverall kinds; as the *Falcon, Merlin, Lannar, Taſſell*, and ſundrie others. Howbeit the *Taſſells* are ſuppoſed to be the males of ſuch birds as live by prey: as the *Taſſell* of the *Saker* is called a *Hobbie*, or *Mongrell hawk*; that of the *Sparrow-hawk*, a *Musket*; that of the *Lannar*, a *Lannaret*; & ſo of the reſt. Now ſome again diſtinguiſh theſe birds, three ſeverall wayes. Firſt by the form and faſhion of their bodie; ſome being great, as the *Goſſehawk, Faulcon, Gerfaulcon*, &c. ſome ſmall, as the *Merlin, Musket, Sparrow-hawk, Hobbie*, and ſuch others. Secondly by their game, as ſome for the pheſant, ſome for the partridge, ſome for the hernſhaw, ſome for the duck and mallard, ſome for one thing and ſome for another. Thirdly they are ſaid to differ in the manner of their following the game; as ſuch know better then my ſelf, who uſe to keep and manage hawks. *The Hawk.*

And if hither I may bring other birds of prey, I would joyn to theſe the *Kite, Ringtail, Buzzard, Bittor*, and ſuch like.

Olaus Magnus makes mention of brave generous falcons in the more northern parts of the world, which live upon the ſpoil of fiſh, and build their neſts upon high mountains: and for all kinds of hawks generally, he accounts *Olaus Mag. lib. 19.*

accounts them the beſt which are bred thereabouts: adding moreover that an hawk is fearfull of nothing more then a Peacock: and as for little infants, he ſaith that there is none, either bird or beaſt kept tame at home, which more deſireth to hurt them, then the Apes and biggeſt Hawks. So have I ſeen ſome maintain and cheriſh thoſe in their own families, perhaps at their own tables, who upon occaſion have proved the firſt to do them miſchief; nay, no occaſion but fit opportunitie is enough for ſuch: as *Brutus* conſpired the death of *Ceſar*. Or again, I have ſeen thoſe delight in that, which hath been the readieſt way to their houſes ruine.

Emblemes from the Ape and Hawk, concerning treacherie and ruine to a mans houſe.

The partridge.

The delicate *Partridge* is a bird well known: ſhe bringeth forth young, which like chickens will runne as ſoon as they can creep out of the ſhell. They are ſuppoſed to live 16 years. They cover the ſhell of their egges with a ſoft duſt ſprinkled over them, and never lodge whereabouts they breed, being very laſcivious wanton birds; as *Plinie* tells us, *lib.* 10. *cap.* 37. And as Phyſicians write, the fleſh of this bird is admirably good and wholeſome, eſpecially for weak perſons: for it comforteth the ſtomach, makes men luſtie, and helps the memorie. Neither do I marvell (ſaith one) that gentlemen be at ſuch coſt to keep hawks, and take ſuch toil to kill Partridges and Pheſants: for beſides the paſtime and pleaſure in hawking, the fleſh of theſe birds is very pleaſant, and every morſel as good as gold.

Well may we wiſh that pleaſure to ſucceed,
Which brings to man ſuch treaſure in his need.

The Pheſant.

The *Pheſants* are ſaid to come firſt of all from about the river *Phaſis*, which is a famous river in *Cholcos*; where they were found, and from whence they were brought by the *Argonauts*: * *Plinie* therefore calls them *Phaſianæ*; and we *Pheſants*. This is a princely diſh: but the *Mallard* is nothing wholeſome; according to that of *Schola Salerni*,

Good

* *Lib.* 10. *cap.* 48.

The Mallard.

Good ſport it is to ſee a Mallard kill'd,
But with their fleſh your fleſh ſhould not be fill'd.
The Capon, Hen, and Chicken, Partridge, Quail,
The heathcock wholeſome is, the Dove the Rail;
The Pheſant, Woodcock, Lark and Thruſh be good,
And all that do not much delight in mud.

Schol. Salern. tranſlated by Sir John Har.

But do you not heare ſweet *Philomel*? heark how ſhe playes the ſilent world aſleep. This is a bird much addicted to watching; for ſhe ſitteth all the night ſinging upon a bough, with the *ſharp end of a thorn againſt her breaſt to keep her waking. Her very throat is able to raviſh the dulleſt eare, and ſo much the more is her muſick beyond compare, in that from ſo ſmall a creature ſuch daintie aires are warbled forth. The Latines call her *Philomela*; that is, a bird *loving to ſing*: and what Stoick but would love to heare her, and give her thanks for her daintie dittie? Should man ſtrive to marrie his induſtrious layes with hers, he could not be ſo much rapt with his own as with her delicious notes: for ſure ſhe ſeems to have

The Nightingale.

*Ælian. var. hiſt. lib. 12.

So many tunes, whoſe harmonie excells
Our voice, our viols, and all muſick elſe.

Du Bart.

The prettie *Lark* chants with a ſugred throat, ſo doth the *Black-bird* *Linot*, the ſeverall kinds of *Finches*, the mirthfull *Mavis*, *Redbreaſt*, *Wren*, *Thruſh*, and *Starling*.

The Lark, Blackbird, Linot, Finch, Mavis Redbreaſt, Wren, Thruſh and Starling.

But all is nothing to the Nightingale,
Breathing ſo ſweetly from a breaſt ſo ſmall.

The *Owl* is another night-bird; her cry is diſmall, and ſhe her ſelf rightly ſtyled *The hate and ſcorn of all the birds beſide*. And of Owls there be many kinds.

The Owl.

The great *Owl* in Greek is called βύας, of βοᾶν *clamo*, or from the dolefull noiſe which ſhe maketh: and ſo in Latine it is *Bubo*. This Owl keepeth in deſert places, is like in ſhape to another Owl, hath talons like the Eagle, and is very near as great. He is thought to be an ominous

Bubo.

nous bird, as he was to *Agrippa*, *Joſ. Antiq. lib.* 18. 1. which muſt be underſtood when he is ſeen in the day; as again in the Councell of *Conſtance* one appeared before Pope John the 22. And of all night-birds, thoſe are hed to be the moſt diſmall, *Qui glutiunt vocem velut ſtrangulati*; that is, *which throtle out a kind of croaking voice, like one that is ſtrangled, or ratleth in the throat.*

The Night-raven.

And of this ſound is that hoarſe bird which is commonly called the *Night-raven*, or *Night-crow*. This alſo is ſaid to be a kind of owl, and (as Authours witneſſe) will take mice like a cat, and many times catch and deſtroy moles. In Greek ſome name him Ἔλεις: and ἐλελίζω is *clamo*, *to cry* or *make a noiſe*: but in Latine he is *Nycticorax*, from νὺξ *nox*, & κόραξ *corvus*; which in Engliſh is the *Night-crow*, or *Night-raven*. And as for his colour, it is black like other crows. See *Geſner de avibus, lib.* 3.

The Scriech-owl.

Again, there is another kind named the *Scriech-owl*, which the Latines underſtand by the word *Strix*, and the Greeks by the word σύριγξ. Some (in old time) have fabled ſtrange things of this bird, namely that it ſucked out the bloud of infants lying in their cradles, and with the very eyes of it did effaſcinate children, or change their favours: whereupon ſome have uſed the ſame word for a witch, a fairie, or hagge.

Noctua.

But perhaps that which is moſt commonly called the *Scriech-owl*, is comprehended under one of the kinds of the *Noctua*: or elſe it may be another Scriech-owl. For there be 4 ſeverall *Noctua's*, as *Geſner* writeth. One is of a large bigneſſe, and hath feathers growing on her head like eares. A ſecond is leſſe; white on the throat and breaſt, ſpeckled on her other parts with a white and muddie colour. A third is alſo leſſe then the former, and ſpotted with white and aſh-colour. And a fourth is alſo leſſe then this, of the ſame colour, inhabiting moſt of all among rocks, and ſuch like places. The *Noctua* in Latine,

tine, in the Greek is called γλαῦξ, from the glaring, or colour of her eyes. And as for the Scriech-owl, ſhe is known by nothing better then her crie.

Alſo there is *Ulula*; and this is that which we call the *Howlet*, or the *Madge*. All the owls are ſolitarie birds, ſome dwelling in deſerts, ſome in churches and in ruinous buildings: and this delighteth to ſit ſleeping in a tree, uſing there likewiſe to build her neſt; frequenting barns and other ſuch like places for the love of mice, young birds, and little chickens. She is of a gray colour in the moſt of her bodie. *The Howlet.*

Some ſay that the egges of an Owl broken and put into the cups of a drunkard, or one deſirous to follow drinking, will ſo work with him, that he will ſuddenly lothe his good liquour, and be diſpleaſed with drinking. To make a drunkard lothe his liquour.

The *Bat* may be next: becauſe ſhe uſeth to flie abroad in the twilight: called therefore *veſpertilio* in the Latine, and νυκτερὶς in Greek. It is a creature between a bird and a beaſt, for it hath a mouth, teeth, members of generation like a beaſt, bringeth forth young ones alive, laying no egges, &c. Onely it flies in the night. and hath wings like a bird. It is therefore called by ſome a *Flittermouſe*, and is no bird but a winged mouſe; for ſhe creeps with her wings, is without feathers, and flyeth with a kind of skin, as bees and flies do; excepting that the Bats wing hath a farre thicker and ſtronger skin. And this creature thus mungrell-like, cannot (as you know) look very lovely. *The Bat.*

But not to keep you longer amongſt theſe birds of night, for fear ſome one or other ſhould affright you, let us now go walk & heare the *Cuckoe* ſing. This is a bird ſo called by reaſon of his crie; and from thence comes the Greek κόκκυξ, and the Latine *Cuculus*: for the noiſe which this bird maketh, and the ſong which ſhe ſingeth, is nothing but *Cuckoe*. This is her note; which note ſhe neither varieth nor changeth untill ſhe be wearing away. *The Cuckoe.*

Olaus

Lib. 19.

Olaus Magnus calleth her the *Annunciatrix optatæ lætitiæ*; which is not in reſpect of her ſweet ſinging, but becauſe when ſhe cometh, then comes that cheerfull time of the yeare, the wiſhed and the welcome ſpring.

False friends.

She loſeth her voice commonly about the end of July, or ſomewhat before; faltring and doubling in her note when ſummer is wearing out. So have I ſeen thoſe who in time of proſperity have been very cheerfull, forward, and obſervant of others, attending them with fair words and great ſhews of love: but when times change, they alſo changed; ſhewing themſelves dull and backward, and yet ſhewing themſelves then no other then they were. For theſe be friends who will abide no winter, but falter now, even as they flattered before, never remembring their former words, how plain and fair ſoever they ſeemed;

Jura, fides, ubi nunc? commiſſáque dextera dextræ,
Quique erat in falſo plurimus ore Deus?

Whereas a true friend indeed, is onely known in time of trouble. For it is a certain rule. *Amicorum idem affectus, Friends are alwayes like affected:* according to that of the Poet,

Ovid. Epiſt.

Et flêſti, & noſtros vidiſti flentis ocellos:
Miſcuimus lacrymas mœſtus uterque ſuas.
Thou diddeſt weep, and didſt my moiſt eyes ſee:
We mixed grief, and wept for thee and me.

Furthermore this is a fowl hated of every other bird, becauſe ſhe ſpoileth their neſts and eats their egges.

Neither is ſhe very fruitfull; for one at a time is enough for her: neither is this one hatched but by ſome other of a differing kind; for ſhe doth not build any neſt, but layeth her egge in the neſt of another, which hatcheth it up as her own. Nay it ſo falleth out, that the poore, ſillie and deceived bird thus beguiled, neglects her nearer brood, as being better pleaſed with the beautie of the Cuckoes

Cuckoes young, untill at the laſt this ſtranger thus brought forth and being ready to fly, deſtroy his nurſe, and kill her for her kindneſſe. So have I heard of ſome, no better rewarded for their good entertainment and watchfull care. For benefits received are little remembred: and where men ſometimes look for love, they are wickedly repayed with hate and harm.

Adulterous men like the Cuckoe.

Alſo there appears from hence another embleme. For in the Cuckoe is deciphered the wicked practice of adulterous men, who are not aſhamed filthily to defile their neighbours bed: From whence we call them cuckolds, who ſuffer this wrong, and yet are innocent; whereas indeed the luſtfull Goat that acteth all, and performs the villanie, is the very cuckold; and the other (poore honeſt man) wronged not onely in his bed, but in his name, is the harmleſſe patient of what he cannot help. Yet this I will ſay, that whileſt many make *Peacocks* of their wives, they do alſo make *Woodcocks* (although not *Cuckoes*) of themſelves: in which, whom they may thank, it is ſoon perceived; or whom they may blame, their folly telleth. For ſignes hanged forth are but the callers in of gueſts; and baits preſented allure fiſh: and as nothing ſooner invites the thief to cut a purſe then ſhew of money, ſo nothing ſooner occaſions an enticement to diſloyalty, then the gaudie veſtments of an immodeſt wife; as in this following Epigram may appear,

A luſtie lad that paſt along Cheapſide,
Incontinent a gallant laſſe eſpi'd:
Whoſe tempting breaſts (as to the ſale laid out)
Invites: and thus this youngſter 'gins to flout.
Lady (quoth he) is this fleſh to be ſold?
No, Lord (quoth ſhe) for ſilver nor for gold:
But wherefore ask you? and there made a ſtop.
To buy (quoth he) if not, ſhut up your ſhop.

The Swallow.

The *Swallow* is a bird likewiſe which comes in the Spring,

Spring, and goeth away again before Winter. Some think that they repair into those countreys where they may rest upon the sides of such warm mountains as lie open to the heat of the shining sunne; and that there they have been found naked, and without their feathers. *Plin.*

But *Olaus Magnus*, in the nineteenth book of his Northern History, writeth otherwise; saying, *Although the writers of many naturall things have recorded that the Swallows change their stations, going, when winter cometh, into hotter countreys: yet in the northern waters, Fishermen often times by chance draw up in their nets an abundance of Swallows hanging together in manner of a cõglomerated masse.* Adding moreover, that in the beginning of Autumne they gather themselves together among the canes or reeds; where, providing themselves to sink into the waters, they joyn bill to bill, wing to wing, & foot to foot. *For it is observed* (saith he) *that at that time having finished their sweet singing, they descend in such a manner; and quietly again, after the beginning of the Spring, they fly out thence and repair their former nests.*

This the said Authour affirmeth with much confidence; and doth likewise say, that some young men have taken this masse, and by heating of it, the Swallows have been again disjoyned, beginning to fly: but they lived not long, because their time should have been a great while more to bring them to perfection. This I confesse is strange, but why may it not as * well be, as that of the *Barnacle* or *Brant-geese*; of which it is certain that they first grow on trees? See more of them in the third day.

* And so much the rather, because they are seen in hotter countreys when they be gone from hence, neither can any one shew a cause for every thing in Nature.

Ælian saith that the Swallow is a watchfull bird, and sleepeth but by halves and fits (as we say) which is no sound kind of rest. And again, her swiftnesse in flying is commendable; and as for her diligence and dexteritie in building a nest, it deserveth praise: insomuch that

that ſome have ſaid, *The Swallow taught men firſt to build. Plutarch. de induſt. animal.*

Flying ſhe ſings, and ſinging ſeeketh where
Sh' her houſe with cunning, not with coſt, may rear.
Her little beak ſhe loads with brittle ſtraws,
Her wings with water, and with earth her claws,
Whereof ſhe morter makes, and therewithall
Aptly ſhe builds her ſemicircle wall. Du Bart.

Next after the *Swallow*, I may come to the *Turtle*. It is a bird which ſingeth not, but hath a kind of groning in ſtead of ſinging; true to her mate, of admired chaſtitie, lives long, is abſent from us in winter; and (as ſome think) being gone, ſhe loſeth her feathers; as *Plinie* likevviſe vvriteth of the Svvallovv. *The Turtle.*

She is alſo a very harmleſſe creature, and without gall. Which if man could frame himſelf to be, the ſerpents vviſdome vvould not hurt him, nor lean-fac'd envie ſojourn vvith him. But being more vviſe then innocent, he makes others grone more at his vvrongs, and under his burdens, then he himſelf either doth or did for his ovvn ſinnes. Innocency to be learned from the Dove.

Columbus, the *Dove* or *Pigeon*, may be next, becauſe it is near of nature to the Turtle. Theſe fovvls ſit upon their egges by courſe, and aftervvards vvhen they be changed from egges to young ones, the cock doth feed and foſter them. They commonly bring forth tvvo at a brood, the one a cock, the other a hen; and have young about ten times in a yeare. But ſome vvhich vvrite of Egypt (ſaith *Ælianus*) declare that the Pigeons in that countrey breed tvvelve times in a yeare. *The Pigeon.*

Neither doth the cock tread the hen, before he hath courteouſly ſaluted her vvith a kiſſe. For the hen vvill not have company vvith him, untill that firſt debt be duly paid. Some (vvho vvrite of India) report that there be Pigeons in that countrey of a yellovv colour. And as for

Stock-doves, they differ from Pigeons, becauſe the Pigeon is ſomewhat bigger, and not altogether ſo wilde. But the Ring-dove is much greater then any of them, and is thought to live about thirtie or fourtie years.

Furthermore, Pigeons take great delight to ſit by the banks of waters and cryſtall ſtreams: which ſome think to be, in regard that (like women) they love to behold themſelves, as in a mirrour or glaſſe. And if nature hath taught them that piece of pride, it brings them no ſmall profit: for whileſt they thus ſit by the water ſide, they can ſoon perceive when the Hawk is coming towards them, becauſe his ſhadow or image will appear in the water; and ſo being fore-warned, they cannot but be fore-armed, and prepared againſt ſuch miſchief as that devouring bird intendeth to them.

Theſe fowls be naturally very hot and moiſt, wherefore they be not good for thoſe that be cholerick or inclined to any fevers: but to them which be phlegmatick and pure melancholy, they are very wholeſome, and be eaſily digeſted.

The Sparrow.

The *Sparrow* dieth quickly, is very laſcivious, and if it be a cock, lives not above a * yeare; if a hen, it hath a longer time. *Plin.*

* *Plinie* thinketh ſo: but I ſuppoſe, that although their time be ſhort, yet it may be more then a yeare.

They be of a very hot nature; and (as *Geminianus* writeth) will, without harm, ſometimes feed on the ſeeds of henbane. Their fleſh is hard to digeſt, they ſtirre up Venus, eſpecially the cock ſparrows. But being boiled in broth, they are reſtorative, and good for weak or aged perſons.

A ſtorie of a Sparrow.

Ælian, in the 13 book of his variable hiſtorie, ſpeaking of *Xenocrates* how he was much enclined to pitie, tells a ſtory of a Sparrow which flew into his boſome. As this man (ſaith he) on a time was ſitting in a ſunnie place, a little chirping Sparrow purſued by an Hawk by whom ſhe was almoſt wearied to death, and fainting in flight, fled

fled into the boſome of *Xenocrates*; which when he ſaw, he entertained her with delight, and harboured her very tenderly till all dangers were paſt, and then he gave her free paſſage to flie whether ſhe would; uttering theſe words when he caſt her up into the aire, *Hoſti ſupplicem non prodidi, I have not given one craving ſuccour, into the hands of his enemie.* And (indeed) to help the helpleſſe, harbour the houſeleſſe, deliver the diſtreſſed, and defend the wronged, *ad aſtra uſque tollit*, nay *ſupra aſtra* rather; and is a divine practice worth recording, and not unworthy imitation.

The Peacock.

The *Peacock* is a bird well known, and much admired for his daintie coloured feathers, which, when he ſpreads them againſt the ſunne, have a curious luſtre, and look like gemmes. Howbeit his black feet make him aſhamed of his fair tail; and therefore when he ſeeth them (as angrie with nature, or grieved for that deformitie) he hangeth down his ſtarrie plumes, and walketh ſlowly in a diſcontented fit of ſolitarie ſadneſſe; like one deeply poſſeſt with dull melancholy: from whence it is ſaid, that he hath *a theeviſh pace, and a helliſh voice.*

An example of envie.

Neither is he other then a perfect embleme of deep envie. For * ſome write that his dung is very medicinable and uſefull to man in many things; which he therefore ſtriveth to hide, and conceal: being indeed the right trick of deviliſh envie, which is beſt pleaſed when ſhe can but exclude the communication of ſuch things as would do good, if they might be had.

* *Gominim. lib. 4. cap. 43.*

The fleſh of theſe fowls, if they be old, is hard of digeſtion; and ſo do phyſicians likewiſe write of the *Turkie-cocks*: but yet the chickens of either of them about half a yeare old, are good and wholeſome.

The Cock.

But I leave this bird, and come to the *Cock*. He it is who is a conſtant herald to the new-born day, and a diligent watch to the ſilent night, altering in his note as

the day approcheth: for in the deadeſt time he crows more deeply then when the night is wearing out; ſhewing thereby as it were the differing houres, and changing watches.

The Cock daunteth the Lion.

It is ſaid that the ſhrill voice of this commanding fowl, will keep in aw the grimme and fierce Lion: ſo *Plinie* writeth; but others have ſaid the contrarie, becauſe it hath been found that Lions have ſometimes ſtrangled Cocks and Hennes without fear: and yet perhaps this might be through the antipathie which is between them. For in this it is free for every one to think what he pleaſeth.

Cock-fights.

Neither is it now any other then a common ſport to ſee ſuch creatures enter battell with their weaponed-wounding heels, and cruell pecking beaks. The originall of which (as * *Ælianus* writeth) was after this manner.

* *Var. hiſt. lib. 2.*

A ſtorie concerning Cock-fighting.

When the Athenians had vanquiſhed the Perſians in a battell, they made a law, that upon one day in every yeare, there ſhould, upon the open theater, be a Cock-fighting kept to be ſeen of all; that obſerving how they fought and endangered themſelves for nothing, others might learn not to be daunted when their countrey lay at the ſtake, but fight with courage unreſiſtable; becauſe they then fought for ſomething. To which purpoſe it is recorded, that when *Themiſtocles* was captain, and ſpectatour of ſuch a Cock-contention, he ſpake thus to his ſouldiers: *Theſe two Cocks* (ſaith he) *endanger themſelves as we ſee to the death, not for their countreys cauſe not for the houſhold gods, not for the priviledges of their honourable anceſtours, not for renown, not for libertie, for wife and children: but onely for this, that the one might not over-crow or beat the other. And therefore the hearts of the Athenians ought rather to be ſtored with ſtoutneſſe and audacitie, that thereby they may purchaſe perpetuall remembrance.*

Ibid.

Cloſe

Cloſe by his ſide ſtands the couragious Cock,
Creſt-creatures king, the peaſants truſtie clock.
True morning watch, Aurora's trumpeter,
The lions terrour, true Aſtronomer,
Who leaves his bed when Sol begins to riſe,
And when ſunne ſets, then to his rooſt he flies.

Du Bart.

The *Crane* is ſaid to be a ſhifting bird: it hath high legges, a long beak and neck; which finding no food in winter in the northern regions, by reaſon of the great cold, retire themſelves into more temperate countreys, and in ſummer return to the north again. *The Crane*

They flie by companies, feed together, love their own kind, and appoint one to be king over them: and if at any time they fight among themſelves, preſently they be again reconciled, and keep their ſocietie as before. They have a watch, and watch by courſe; there being in the claw of that Crane whoſe turn it is to wake, a little ſtone, that ſo if by chance this watching bird ſhould fall aſleep, the ſtone falling down might again awake him. *Gemin. ex Ariſtot.*

Moreover it is ſaid, that when they do alight upon the ground, their king is firſt, and he alſo firſt raiſeth himſelf from the earth and looketh round about him, to ſee whether any one be coming, that thereby giving warning, they might defend themſelves. Which is (indeed) a fit embleme of carefull paſtours, good magiſtrates, and honeſt governours, whoſe part it is to be at all times vigilant for the good of thoſe over whom they are. Nay, their captain and their watching, doth not onely ſhew the care which ought to be in governours, but alſo the neceſſitie of government is deciphered by it.

Care ought to be in Paſtours, Magiſtrates, and Governours; taught by an example from the Crane.

And again it is reported, that when theſe birds flie out of *Cilicia*, over the mountains *Taurus*, each of them car-

The tongue hath brought many to miſchief.

rieth in his mouth a peble ſtone, leſt by their chattering they ſhould be ſeized upon by the Eagles. So have I ſeen thoſe whoſe unbridled tongues have but brought them to miſchief, and rouzed the Eagles about their eares: whereas *in little medling is much reſt; & nothing ſaid is ſoon amended.* The wiſe man therefore will wear diſcretion as a ſtone upon the tip of his tongue, leſt chattering ſuch words as he knows not what, he meet with that which he looks not for.

And now I could ſpeak of the warres which the Cranes have againſt the Pygmies, whom *Du Bartas* calleth *Dwarfs of the North*: but I had rather referre you concerning this to *Plinie*, in the ſecond chapter of his ſeventh book. Phyſicians tell us that the Crane is hard of digeſtion, and maketh ill juice; but being hanged up a day or two before he be eaten, he is the more tender, and leſſe unwholeſome.

The Swan.

The ſilver *Swan* is a white bird, living in marſhes and calm rivers; very loving unto his fellow, the male to the female, whom when he draweth to him, with his long neck he doth as it were embrace her: wherefore in Greek he is called κύκνος, of κύκνειν, *to embrace* or *kiſſe*; whence alſo is derived the Latine *Cygnus*. They do one defend the other, and ſit upon their neſt by turns, and equally have care of their young ones when they be hatched: neither can the he-Swan endure that the ſhe ſhould companie with another; in which they be a perfect pattern of chaſte, mutuall, and matrimoniall love. Howbeit they will ſometimes fight very fiercely with their own kind: and againſt the Eagles they have cruell battells, ſtriving not ſo much to obtain rule, as to revenge their injuries.

A pattern of matrimoniall love.

It is likewiſe ſaid that they ſometimes ſing, but never more ſweetly then when they be dying and exchanging life for death: of which ſome doubt, and approve it as a thing onely ſpoken in a poeticall manner; yet *Ariſtotle*

is

is againſt them, affirming that many have heard them ſing in the Aſſyrian ſea. To which purpoſe, *Martial* hath this epigram.

Dulcia defecta modulatur carmina lingua
Cantator cygnus: funeris ipſe ſui.

Sweet ſtrains he chaunteth out with's dying tongue,
And is the ſinger of his fun'rall ſong.

Wherein he is a perfect embleme and pattern to us, that our death ought to be cheerfull, and life not ſo dear unto us as it is. And from hence came the proverb, *Cygnea cantio*, which is but *a lightning againſt death.* Death ought to be cheerfull.

I formerly made mention of the *Raven*: but beſide the Raven there deſcribed, there is alſo a *Sea-raven* or *Sea-crow*, which is a bird very black unleſſe it be on the breaſt and bellie, upon which they be of an aſh-colour. They hunt after fiſh, and have toothed bills like unto the reapers ſickle, with which they can hold even an eele, as ſlipperie as it is. The dung of this bird is of an evil nature: for it will rot both the boughs and barks of ſuch trees as it falleth upon; and ſo it is alſo ſaid that the dung of the Heron doth. *Olaus, lib. 19.* *The Sea-crow.*

The ſaid authour ſpeaketh of another Sea-crow, which in ſeven dayes builds her neſt, and in the next ſeven layes her egges and brings forth young: and of another which he calleth *Morſex*, or *Humuſculus*, ſo called becauſe ſhe muſt beat the water with her tail before ſhe can flie. She is black all over, and with the reſidue of her companie uſeth to build her neſt upon the tops of high trees, growing near to ſuch places where be ſtore of fiſh, which they catch and devoure very greedily: and of theſe birds there be great ſtore in the more Northern parts of the world. But they have eſpecially two enemies: the one is a bird which *Olaus* calleth *Platea*; the other is a fiſh which is called *Raia.* *A bird called Platea.*

Policie is better then ſtrength.

The *Platea* lies in wait for theſe crows, and flies at them when they have gotten their prey, and never leaves biting them upon their heads, untill ſhe cauſe them to leave it. This bird uſeth to ſwallow down an abundance of whole cockles into her bellie, and there having warmed them, ſhe caſts them up, and then their ſhels gaping, like unto the roſted oiſter, give her leave to take out their meat and eat it: which ſheweth (as I ſaid once before, in the deſcription of another bird) that policie is better then ſtrength, and in the hardeſt matters prevaileth beſt.

The Ray kills the Sea crows.

The other enemie is not a bird, but that fiſh which we call the *Ray*. For whileſt the devouring Crows be diving under water to catch their prey, they themſelves are caught by this fiſh and devoured ſuddenly, leſt otherwiſe they might want a revenger of their rapacitie even where and whileſt they do wrong. Howbeit this *Ray* is a loving fiſh to man: for ſwimming in the waters, and being greedily purſued by the devouring Sea-dogs, the *Ray* defends him, and will not leave him untill he be out of danger.

There be alſo an abundance of other birds in thoſe parts of ſtrange properties, and names ſcarce known: of which, they who have a deſire, may reade more in *Olaus Magnus*, the nineteenth book of his Northern hiſtorie.

The Plover.

The *Plover* is *Avis pluvialis*, and a fowl well known: howbeit ſome have thought that they live onely by the wind, and eat nothing at all; but they deceive themſelves in this opinion, as experience teacheth. For they have not onely been ſeen to feed, but taken alſo with meat in their crops. And that which firſt occaſioned this errour, was their quick digeſtion; for they commonly eat things that are eaſily digeſted, and ſoon conſumed. *Plover*, * ſaith one, is thought to be a daintie diſh and right wholeſome, yet it is ſlow of digeſtion, nouriſheth little,

*See the haven of health, Pag. 130.

little, and increaſeth melancholie. The like he affirmeth of the *Lapwing*: but the *Teal* he yieldeth to be ſomewhat better.

Moreover, the Plover flying high doth ſignifie rain: which bird *Olaus* deſcribeth after this manner: There is ſaith he, a bird which we call *Avis Pluvialis*, about the bigneſſe of a Partridge, ſuppoſed to live by nothing but aire, becauſe her bellie uſeth to be emptie of meat, and yet ſhe is very fat: her feathers are diverſly coloured, ſome with white, ſome with black, and ſome with ſaffron colour: and this bird the fowlers thus hunt; by throwing up into the aire ſhort heavie clubs: for by ſo doing they cauſe her to deſcend, and being deſcended, they catch her in their nets, laid readie for the ſame purpoſe.

Vpupa or the *Lapwing* is a baſtard-plover. This is a querulous bird, flying up and down lapping and clapping with her wings; from whence ſhe is called a *Lapwing*: and in Latine ſhe is named *Vpupa*, from *pu, pu*, which is the crie that ſhe maketh; thereby ſecuring her neſt and young ones from our finding. For by this practiſe ſhe will draw us away from them as farre as ſhe can. The combe or creſt upon her head, gave *Ovid* a fit occaſion to feigne a tale of a * king turned into a Lapwing, whoſe crown doth yet appear upon the head of this bird. *The Lapwing.*

* *Tereus rex Thrac. cum Mat. lib. 6.*

The Lapwings fight often with the Swallows, Jackdaws, and Pies, and by their much crying do ſignifie rain. And as for their young, being as it were half hatched, they will runne from their neſts with the ſhells on their heads.

The *Oſprey* is a ravenous bird which hovereth over pools to take fiſh; having one claw foot, and another flat. *The Oſprey.*

Galgulus-Icterus or the *Charadrion*, is a bird unto which *The Charadrion.*

which ſome aſcribe this ſtrange property, *viz.* that if any who hath the Jaundiſe look upon him, and the bird on him, the bird then taketh the diſeaſe and dieth, but the man is cured, made ſound, and liveth. Such are we, by nature ſick unto death, but by Chriſt (who died for our ſinnes and roſe again for our juſtification) we are cured, made ſound, and live.

An embleme from the cure done by this bird, concerning our cure wrought by Chriſt.

Porphyrio.

Porphyrio is a bird drinking as though he did bite the water; his bill and legs are red and long.

The King-fiſher.

Halcyon or the *King-fiſher* is a bird which maketh her neſt in winter upon the ſea, during which time there is a calm and quiet ſeaſon: whereupon we call thoſe dayes *Halcyon dayes*, wherein we have peace, reſt, and quietneſſe. They live alſo about rivers, laye five egges, and (as * *Plinie* witneſſeth) are ſeven dayes in preparing their neſts, and in the other ſeven they bring forth their young.

*Lib. 10. cap. 32.

Ovid. Met. lib. 11.

The Poets have a fiction of *Alcyone* and *Ceyx*, who were turned into theſe birds: For when *Alcyone* heard that her husband *Ceyx* was drowned in his way home from a certain voyage, ſhe caſt her ſelf into the ſea, and then for the pitie which the gods had of them, they were both transformed into *Halcyons*. But without any fiction, this we are ſure of, that it is a ſtrange bird, and as it were natures deareſt darling; ſeeing that in favour of her neſts and young, the waters leave their raging, the winds their blowing, tempeſt have forgot to riſe, and dayes appear with quiet calms.

Du Bart.

The Pirate (dwelling alwayes in his bark)
Her building dayes deſiredly doth mark:
And the rich merchant reſolutely venters,
So ſoon as th' Halcyon in her brood-bed enters.
For ſo long as her quiet couch ſhe keeps,
The boyling ſea exceeding calmly ſleeps.

*He names onely the Sicilian ſea.

This is a bird which feedeth upon fiſh, and by diving after

after them, catcheth them; as is not ſeldome ſeen.

Bermuda birds.

In the Summer iſlands, amongſt other things, we heare of varietie of fowls. For upon the diſcovery of thoſe parts by Sr. *George Summers*, and Sr. *Thomas Gates*, an abundance of fowl were taken. They took a thouſand of one ſort in two or three houres, being as big as a Pigeon, and laying ſpeckled egges upon the ſand, as big as hennes egges which they would daily come and lay, although men ſat down amongſt them. *Purch.*

There alſo is another fowl that liveth in holes like cony-holes; their egges like to hen-egges, both in quantitie and qualitie. And other birds were there found ſo tame and gentle, that whiſtling to them, they would come and gaze on you, while with your ſtick you might kill them. *Idem.*

Birds of Paradiſe.

But in Aſia, in one of the *Molucco* iſlands named *Tidore*, is a ſtrange bird which they call *Mamucos*, or *birds of Paradiſe*: they have leſſe fleſh then the bodie maketh ſhew of; their legs be in length about and hand-breadth, their head ſmall, their bill long, their feathers fair & of a ſingular beauteous colour: Authours write that they have no wings, neither do they fly, but are born up in the aire by the ſubtiltie of their plumes, and lightneſſe of their bodies. They are never ſeen (ſaith my Authour) upon the ground but dead, neither do they corrupt or rot in any ſort. There is no man knoweth from whence they iſſue, neither where they breed up their young ones, nor whereupon they nouriſh themſelves. The iſlanders believe that they make their neſts in Paradiſe, and tell many fables thereupon: which perſwaſion the Moores firſt put into their heads. They call them *Manucodiata*, or *holy birds*, and have them in religious account; inſomuch that ſome of them have believed that ſouls are immortall, by the conſideration of ſuch a bird. And as for the ſuſtenance which keeps this fowl alive, although it be hard

hard to ſay upon what it is maintained, I do eaſily think that we may liſten to them, who ſuppoſe that they nouriſh themſelves, and maintain their lives by the devv that falleth, and the flovvers of the ſpices. See *Geſner de Avibus, lib.* 3.

Some have vvritten that it is a bird vvithout legs: but Mr *Purchas* in tvvo ſeverall places alledgeth the teſtimonie of one* *Pigafetta*, vvho vvitneſſeth that it is a bird having two feet aswell as other birds; but as ſoon as they be taken, they are cut off, vvith a great part of their bodie, vvhereof a little is left with the head and neck, which being hardened and dryed in the ſunne, ſeem to be ſo bred. And other Authours vvitneſſe that there vvas one of them ſold to the Emperour in the yeare 1605, vvhich had legs on it.

Cardan likevviſe mentions this bird; but ſeeing his report is differing from our modern vvriters and travellers, I forbear to rehearſe it: Hovvbeit they vvho reade *Geſner* ſhall ſee it in his third book of birds, together vvith a figure of this fovvl.

But out of Aſia look yet once again into America: and then you ſhall ſee as ſtrange a vvinged creature, as any vve have heard of yet; I mean the Nevv Spains *Cucuios*, vvhich vvhether I may call it bird, or beetle, I cannot tell. He is very little, and of the thickneſſe of a mans thumbe or thereabouts; but amongſt the vvorks of God, he is a moſt admirable vvonder. For he carrieth foure lights vvith him, vvhich* ſhine in the night; tvvo in the ſeat of his eyes, and tvvo vvhich he ſhevveth vvhen he openeth his wings. And as for his wings, he hath two very ſtrong and hard, under vvhich he hath tvvo other little vvings very thin, vvhich appear not but vvhen he extendeth his other to fly. The Indians uſe them in ſtead of candles, and (ſaith my * Authour) if a man tie five or ſix of them together, they yield as much light as a torch.

And

*Who alſo writeth that he ſaw a tree in the Eaſt-Indies, the leaves of which changed themſelves into birds, who lived but 8houres. *Du Bart. Sum.* And of birds in the Moluccos as big as hens, with horns in ſtead of creſts: They lay their egges in the ſand, and there they be hatched.

The Cucuios.

*Like unto which are thoſe birds mentioned by Plinie and Solinus. *Plin. lib.* 10. *cap.* 47.

*See Purch. and Du Bart. Summary, pag. 243.

Bees.

And loe, juſt novv, as if it vvere by the light of this creature, me thinks I ſee the painfull and induſtrious *Bees* fly flocking to their hives.

Theſe be thoſe vvinged vvorkmen, vvhich vvhether their profit or admiration be greater, I am ſcarce able to ſay. For they do not onely buſily beſtirre themſelves to gather hony, vvhich is very uſefull in the life of man; but they do work it up in moſt ſtrange manner, & keep it in their vvaxen cells ſo rarely built, that all the men which the vvorld affords are not able to do the like. Neither is this all; for they live ſo, as they may be true patterns of needfull government, keeping themſelves under the ſubjection of a king, and order of lavvs. They may vvell be likevviſe ſaid to have the ſoveraignty and preeminence above all others of this kind, becauſe the reſt come farre ſhort of their perfections.

It is a creature having foure vvings, and bloudleſſe, the onely crafts-maſter of honie. Their eyes are ſomevvhat of a horny ſubſtance, hid deep in their bodies, as is alſo their ſting; vvhen vvhich they loſe they die:

——*Vitam in vulnere ponunt*;

becauſe their ſting and entrails come avvay together. They vvant neither tongue nor teeth; and out of their ſhort feet or ſtumps, there grow forth as it were two fingers, vvherein they carry a little ſtone, for the poyſing their bodies in ſtormy, vvindie, tempeſtuous vveather; it being a great means to keep them from blovving avvay and loſing their home.

Neither can it be denied, but that by nature they are much different: for ſome (ſaith *one) are more domeſticall and tame, and others again are altogether vvild, upland-iſh and agreſtiall. Thoſe former are much delighted with the familiar friendſhip, cuſtome, and company of men; but the other can in no vviſe brook or endure them, and therefore they keep their trade of hony-making in old trees, caves and ſuch like other holes.

*Topſel in his Hiſt. of Serpents

As

As for their breathing, I do not believe it; howbeit they may pant, move, or ſtirre (as the heart or brain doth) and by tranſpiration be comforted and made lively: for they be much refreſhed by the aire which paſſeth through their divided places, inſomuch that they alwayes uſe great diligence and care to preſerve them from being ſtopped: for as ſoon as they be ſtopped in thoſe paſſages, they die; as we ſee if at any time they chance to fall into oyl, or the like liquour which may ſtop their pores.

Some make three kings amongſt them, differing in colour, as black, red, and divers-coloured; but perhaps there is rather one king in a companie, the other like kings may be eſteemed as viceroyes. In their breeding they actually couple together, after which they lay egges, ſitting upon them for the ſpace of five and fourtie dayes: then do thy hatch their young ones, which at the firſt come forth much like to white worms, except the king, who onely is ſaid to be hatched with wings. And ſometimes there is a kind of Bee bred out of putrefaction, as Authours write. A rotten horſe breedeth Waſps: a dead calf Bees, if the Weſt wind blow; from an aſſe proceed Humble-bees; of a mule, Hornets, &c. And whether the Bees, in Sampſons dead Lion, were bred any where elſe, no man knoweth.

They have a Commonweal, and are governed by a king, as before was mentioned: and him they reverence and honour, being alwayes readie to do according to his pleaſure. He is of bodie farre bigger then the hony Bees, hath ſhorter wings, but a brighter and more goodly head then they. There is alwayes excellent diſcipline, and very good government among them: for at the mouthes of the hives there be ſome which ſtand like warders placed at the gates of a caſtle, to ſee who goes in and out. And having reſted quietly all night, there is one which with a humming noiſe doth call them up, whereupon they prepare

pare to flie abroad about their buſineſſe: but if they make no haſte to look out, or go not farre from home, it is a certain ſigne of no good weather. When they be buſie at their work, the Bees which go abroad return home with laden thighs, full of the ſubſtance of the flowers; and this eſpecially is ſaid to be an office of the younger Bees: for ſome of the other do onely carrie water; and the elder ones remaining at home, do buſily lay up, carefully diſpoſe, and curiouſly dreſſe what the other bring in. Such as be ſluggiſh among them, are diligently obſerved, and bitterly puniſhed: and as for the drones, they are ſuppoſed by ſome to be the female Bees, which they drive out of their hives when breeding time is paſt; and therefore they do ill who uſe to kill the drones before. Others again think that the female Bee is no drone, but rather bred among the Bees, and being idle, and unapt for work, is driven away either in the buſieſt time, or time of dearth. And yet perhaps it may be the female, which having done as much as can be naturally required from her, muſt not think much to be driven away, but leave her room to a ſucceeding generation.

I ſaid before, that in the morning there is one among them which calls them up, and ſo in like manner at night they leave their buzzing by degrees, at laſt hearing as it were a proclamation through their hive to go to reſt: and ſo the watch being appointed, and all things ſet in order, they all make themſelves readie to go to bed. So long as the king liveth, ſo long the whole ſwarm enjoyeth the benefit of peace; but he being dead, there is great diſorder. The king keepeth his court by himſelf, in the higheſt room and largeſt part of the whole palace, his lodging being very curiouſly made. And if at any time any of them chance to die, they be carried out of the hive, as it were upon the ſhoulders of the other Bees, who will ſuffer nothing in their houſes which may pollute them: but if

if they be onely ſick, then have they a medicinall aliment of hony, drawn from anniſe, ſaffron, and Hyacinths, by which they are cured. *Topſell.*

And when they be readie to ſwarm, they dare not take their flight untill their king leade the way; unto whoſe ſide they ſtrive to flie, as near as they can. Some ſay, if their king be ſuch as tenders the good of the other Bees, he goes but ſeldome abroad: and ſtragling often from home, they will rid themſelves of him. But when he dies through age, they carrie him forth in ſolemne manner, and behave themſelves as at ſome ſad funerall. Neither is he ſo tied to his home but that he may ſometimes go abroad to refreſh his aged bodie, whom they accompanie in a ſweet obedientiall manner; and if it chance that he grow wearie and faint by the way, they bear him back again upon their wings, and with great commiſeration pitie his decayed eſtate. Moreover they will not ſuffer a dead Bee to be in their hives, but carrie him forth as to his buriall, leſt he ſhould corrupt their pure and cleanly decked dwellings.

Topſ. hiſt. Serp.

Waſps.

Veſpa, the *Waſp*, is an angrie creature: they make them neſts moſt * commonly in the ground; their combes be round, much after the faſhion of a broad toadſtool; and their cells are diverſly faſhioned. They be very tenderly affected to their females when they are with young, and will not ſuffer them to take any pains, but lay the whole burden upon themſelves. Like unto the Bees, they affect a kingly government; and in caſe they have no leader, they make their neſts in holes of clay, walls, and the like; where they live like vagabonds and gather nothing. They do oftentimes rob the Bees, and (as I ſaid) be very angrie creatures, implacable, and very noxious to thoſe who diſturb their neſts. *Ariſtophanes* calleth all thoſe maids which are fine, ſlender, and prettie ſmall in the waſte, σφηκιδεῖς, reſembling them to

* But ſometimes in tharched houſes.

Waſps

Waſps; which by *Topſell* is interpreted, as if he ſhould name them *Waſt-waſted-wenches*: the reaſon whereof is, becauſe the bodie of a Waſp ſeemeth to be faſtened together to the midſt of the breaſt, with a certain thinne fine thread as it were; and to be as if they had no loins at all. And as your fineſt bodied wenches are like them in their waſte, ſo ſometimes too like them in their ſting; by which their beſt beautie is eclipſed: and better were it to endure the continuall droppings and thunderings of a rainie day, then the waſpiſh harms of wicked women, whether it be that they carrie their ſtings either in tongue or tail.

Hornets.

The *Hornet* is called by the Grecians ἀνθρήνη, becauſe with their ſting they raiſe an *Anthrax* or carbuncle, with a vehement inflammation of the whole part about it: & in Latine it is called *Crabro*. Theſe creatures do not gather their meat from flowers, but for the moſt part they live upon fleſh and ſtinking carrion, which makes them delight ſo much in dunghills. They uſe likewiſe to catch flies, and hunt after ſmall birds, which if they can but ſting, they kill. Mr *Topſell* makes mention of a ſtrange combate between an Hornet and a Sparrow, which he himſelf ſaw, at a town called *Duckworth* in *Huntingtonſhire*; and the Sparrow loſt the day: for being wounded by the Hornets ſting, the bird fell to the ground and the Hornet greedily ſucked her bloud. The ſaid Authour writeth that their life is but ſhort, never above two years: and as for their combes, they be wrought with greater cunning, more exquiſite art, and curious conceit, then thoſe either of Waſps or Bees; neither need we doubt (ſaith he) but that they bring forth young by the ſides of their cells, and perform ſuch other offices in their breeding as the Bees and Waſps do.

A fight between a Sparrow and a Hornet.

The *Gray* or *Badger* is their greateſt enemie; for in the full of the moon he uſeth to make forcible entrance into

The Badger an enemie to the Hornet.

their holes, and without fear he is able to ſpoil their neſts. And albeit they moſt commonly feed upon fleſh, yet they do greatly love all kind of ſweet things, and oyl, with other matter of a greaſie ſubſtance.

A good medicine againſt ſtinging.

And for to make a medicine againſt the ſting of bees, hornets, or waſps, do thus. Take of opium, of the ſeed of henbane and camphire, of each a like quantitie, and incorporate them with roſe-water or juice of willows, and lay it upon the wounded place, applying on the top of it a linen cloth, which muſt be firſt throughly wetted in wine, and this is good to aſſwage the pain. Vineger and camphire are alſo excellent to waſh any ſich place.

Cantharides.

Cantharides are flies whoſe juice is poiſon: they ſhine like gold, and muſt be carefully uſed in any experiment, otherwiſe they do much harm; as the unskilfull and adventurous have ſometimes proved to their own coſt.

Pyrauſta.

Pyrauſta is a flie ſo called from πῦρ, *ignis*; becauſe it lives in the fire, and dieth without it. *Plin. lib.* 11. *cap.* 36.

Tarantula.

Tarantula is a little flie, frequent in Italie: it will many times ſting the people, whereupon they preſently fall a laughing; and if muſick be not forthwith brought them, they cannot chooſe but in a mortall merrie fit take leave of the world and * die. Neither can they at all be cured, unleſſe by hearing muſick: and (as it is reported) if the cure be not throughly done, they dance ever after at the ſound of muſicks pleaſing ſtrains: ſhewing thereby, that this is a creature, an admired creature, and of a ſtrange propertie.

* Like unto which is an herb in Sardinia, of which if any eat much, they periſh and die laughing. It is like to Trim gentle. *Mould.*

Bombyx.

Bombyx is commonly called the *Silk-worm*: but whether I may name it a worm or a flie, I cannot tell. For ſometimes it is a worm, ſometimes a flie, and ſometimes neither worm nor flie, but a little ſeed, which the dying flies leave behind them.

As for example; when theſe daintie creatures have made

made them little husken houſes, and ſpunne out the juſt length of their ſilken webs, they eat out themſelves from thoſe priſons; and (although they were worms before) yet then they appear with their prettie wings, and flie about a while: in which ſpace the male accompanying with the female, doth as it were tread her; and then, laying ſome certain egges, like little ſeeds, they ceaſe to live any longer: from which ſeeds proceed more young ones (at the firſt like maggots) and they do as their dammes before them, and then die.

And let this creature end my diſcourſe concerning the things done in this fifth day; wherein, not able to mention all, I have toucht at ſome; and thoſe ſo excellent, as I could have ſpent more time in their better view, were it not that the ſucceeding day haſtens his dawning. In the phraſe of Moſes I will therefore conclude, and concluding ſay,

The Eve and Morn confine the fifth of dayes,
And God gives to his work deſerved praiſe.

CHAP. IX.

This ninth chapter concerneth the creatures made in the ſixth and laſt day; namely creatures living neither in the aire, nor water, but upon the earth: and theſe be of two ſorts, the brute beaſts, and Man.

This chapter hath two Sections.

Sect. 1.

Wherein is both a diviſion and entrance into this dayes work; as alſo a diſcourſe of the firſt part of it, concerning the brute beaſts, whoſe creation was in the firſt part of the day.

THe juſt period of the fifth day being come to an end, the ſixth approcheth; wherein God Almightie ſhutteth up the creation of every *ſpecies*: and after all, he reſteth from his work, and watcheth by his providence over each part and parcell of the world which he had made.

And in this day he firſt produced the brute beaſts living upon the face of the earth: then he comes to the creation of man, and makes him the *Colophon*, or concluſion of all things elſe; in whoſe nature he placed the greateſt dignitie of any creature that is viſible: for man is

is of a middle between the beaſts and Angels, tranſcending the one, and yet not worthy to equalize the other; as afterwards, when I come to that particular, ſhall be declared, with other things pertinent to his creation.

And now, that the terreſtriall beaſts and he ſhould be made both in one day, is worth obſerving: for had he been to live in the aire, he might have ſeen the ſunne with the flying fowls, and have been created when they were made: or had his habitation been in the waters, the fiſh and he might both at once have been produced. But being made, neither to ſwimme with the fiſhes, nor flie with the birds, but live upon the earth, it was moſt harmonious that the terreſtriall beaſts, and his creation, ſhould in the ſame day the one ſucceed the other. And that the end might ſhew the perfection of the work, the prioritie of time is given to the beaſts; but the excellencie and prioritie of all appears in man, who was made *Lord of the creatures*, and in whom God had placed a ſurpaſſing condition, and (by farre) a more noble nature. For whereas they are led by ſenſe, he hath reaſon; whereas they look downwards and groveling from the skie, his countenance is erect, and his looks are mixt with majeſtie; whereas they are animate without an immortall ſoul, he liveth when he dieth, and hath a ſoul which death it ſelf knows not how to kill: and whereas their bodies fall and never riſe again, his riſeth when it is fallen, and is like ſeed ſown, which ſprouteth up when the time is come.

The creation of beaſts.

If this then be both the order and cauſe of ſuch an order in this dayes work, I muſt leave the moſt excellent piece untill the laſt, and begin firſt to look and obſerve how the beaſts, in their ſeverall kinds and daintie ſquadrons, march up and down, and walk from out the ſhop of their Creatour; being brought to perfection even as ſoon as that powerfull word who ſpoke it, did onely ſay it, *Let them be.*

It would (I confesse) require no small volume to discourse of all. Howbeit even in a few, the glory of their Maker may well appear: and with that thought let us name some, by which we may admire the rest.

The Elephant.

And first consider what a strong vast creature the mighty *Elephant* is known to be. There is no creature (saith * one) among all the beasts of the world which hath so great and ample demonstration of the power and wisdome of Almighty God, as the *Elephant*; both for proportion of body, and disposition of spirit: and it is admirable to behold the industrie of our ancient forefathers, and noble desire to benefit us their posteritie, by searching into the qualities of every beast, to discover what benefits or harms may come by them to mankind: having never been afraid of the wildest, but they tamed them; and the greatest, but they also set upon them: witnesse this beast of which we now speak, being like a living mountain in quantitie and outward appearance yet by them so handled, as no little dog could be made more serviceable, tame or tractable.

* Topsil.

They are usually bred in * the hot eastern countreys, for by reason they cannot well endure the cold, they delight most in the East and South; as in India, and some places of Affrica. And before the dayes of *Alexander Magnus*, there were never any in Europe: but when he fought against * *Porus* King of India, he became master of many: and how bravely they fought at the first for their masters, and received many wounds, *Curtius* hath related.

* Plin. lib. 8 cap. 11.

* Curt. lib. 8.

These Indian *Elephants* are most commonly * nine cubits high, and five cubits broad; and in Africa they be about eleven foot high, and of bignesse proportionable to their height.

* Topsel.

* And in *Pegu* the King hath many; it being part of his royall title, *King of the White Elephants.* See Mr. *Purch* in his Pilgr. of Asia, *lib.* 5.

Their colour is for the most part mouse-coloured, or black; and yet there was * once one in Ethiopia all white,

as

as Mr *Topsall* relateth. They have a skinne so hard (excepting on their belly) that it is a very hard matter, and in a manner impossible, to pierce it vvith any svvord spear, or iron. It hath on it very fevv hairs, and is very full of chaps or crevises, in vvhich there is such a savour as invites the flies to a continuall feast: howbeit they pay dearly for their cheer; for although the *Elephant* cannot make use of his tail to drive them away, yet by shrinking of himself close together, he incloseth the flies vvithin the chaps, and so killeth them. He hath a long trunked nose, mightie teeth, foure vvhereof be vvithin his mouth serving to grind his meat, and tvvo hang forth; as aftervvards shall be shevved. He hath a tail slender and short, and legs of an infinite strength; his head is very great, so that a mans head may as easily be thrust into it, as his finger into the mouth of a dog: but yet his eares and eyes are not equivalent to the residue of his other parts: for his eares are small, and their matter like to the vvings of a Bat or Dragon; and some (bred in some places) have no eares at all. Their eyes likevvise are like the eyes of svvine, but very red. Tvvo of their teeth (as I said) grovv farre out of their mouthes, one of vvhich they alvvayes keep sharp to revenge injuries and defend themselves, and the other is lesse sharp, being often used to root up plants and trees for their meat; and commonly they grovv out to the length of ten feet: this is that vvhich vve call Ivory, and of vvhich manie prettie things are cut by artists.

Munster reporteth how these beasts are taken; namely by the cunning cutting down of a tree, against which they use to lean and stay themselves. For this beast, *saith he, having fed till he is full, betaketh himself to rest and leaning to a tree he sleepeth, for he cannot bend his joynts as other beasts do; not because he wanteth joynts, *Munst. Cosmog.

but becauſe his ſinews are more ſtrong, and cloſely knit his joynts together; or elſe becauſe there is much fleſh between the skinne and bones; or becauſe his skinne is ſo cruſtie, like to armour, and unfit to bend. Now when the people perceive any ſuch tree as is worn and made foul by the *Elephants* leaning againſt it, they come in the abſence of the ſaid beaſt, and cut it almoſt quite through, cloſe by the ground; inſomuch that being ready to fall, it cannot ſtand when the *Elephant* cometh to reſt againſt it, but by giving way cauſeth him to fall together with it; and then he lieth helpleſſe upon the ground all the night with his belly upward, and not being able to bend his legs and ariſe he is caught in the morning by thoſe who before had cut the tree with purpoſe to deceive him.

The way to catch Elephants.

The ſaid Authour alſo mentions another way whereby they of India ſometimes take and tame them. For there be *Elephants* (ſaith he) in India which be very wild and fierce, but they are eaſily made tame; namely thus. The people intending to catch them, compaſſe ſome clean place with a deep ditch of about foure or five furlongs in compaſſe, and in one place onely they make a bridge very ſtrait and narrow, being the way to enter in: then they ſet three or foure female *Elephants* which they have already * tamed, and they themſelves lie watching privily till the time that the wild *Elephants* come and paſſe over the bridge: then on the ſudden do they * ſtop the paſſage, and afterward bring ſome of their ſtrongeſt tame *Elephants* to fight with theſe wild ones thus incloſed: beſides which, they do likewiſe puniſh them with hunger and lack of meat; and when they be wearied with fighting, they which are bold hardie fellows (by help of the tame *Elephants* to ſhelter them) will privily creep under their bellies and ſuddenly chain and fetter them. After this they move their tame *Elephants* again to

* Theſe females are anointed with a certain oyl, which cauſeth the wild Elephant to follow them.

* Some ſay they are chaſed in, as is alſo the tame Elephant trained up on purpoſe for ſuch huntings. *Purch. of Aſia, lib. 5.*

to beat the wild untill their fetters caſt them to the ground, and then they yoke them to the necks of their tame ones, and lay chains upon them that thereby they may paſſe on quietly: and at laſt bringing them home, they faſten their legs and necks to a ſtrong pillar, and ſo by hunger and ſocietie tame them; teaching them at the laſt when they begin to feed them, to be obedient to their maſters in ſuch manner as beſt pleaſeth them: and then they will grow ſo loving, gentle, mild, ſerviceable, and docil, as is indeed a wonder. And if by chance any of them ſhall happen through fury to kill his keeper, he will ſhew ſo much ſorrow, and take it ſo heavily, that he abſtaineth from his meat, and ſometimes even pineth to death; like unto that Dolphin, which in the former day I mentioned, who uſing to carry a boy upon his back, one day by mere accident hapned to kill him with one of his prickles, not cloſely couched, before the lad was mounted on his watery ſteed.

The little mouſe is ſometimes offenſive to this beaſt, and will ſtrive to run into the trunk of his noſe; neither can he endure to eat more of his meat if he ſee but a mouſe runne over it. The mouſe is offenſive to the Elephant.

But above all, he hath two fierce enemies; *viz.* the *Dragon*, and the admired great *Rhinoceros*, who coming to fight with the *Elephant*, firſt whetteth his horn growing upon his ſnout, and then grappling cloſe, he woundeth the *Elephant* into his belly; for elſewhere the force of his fury cannot enter. *Plin. lib.* 8. *cap.* 20.

And as for the *Dragon*, he likewiſe fighteth furiouſly, becauſe his delight is to ſuck the bloud of the *Elephant*, which is cooling to his hot nature: but drinking too largely of it, (as he will do if he can) down falls the *Elephant* for lack of bloud, and down likewiſe falls the *Dragon*, becauſe he hath ſucked too much: and ſo both die ſtriving together. *Ibid. cap.* 12. or, as * ſome ſay, the *Elephant* *Munſt.

phant dying falls upon the Dragon, and so kills his foe who killed him.

And in this fight the Dragon deals most cunningly: for first he sitteth watching upon a tree, and when the *Elephant* is come near unto that place, he suddenly skips and cleaves round about him: and if then the *Elephant* begin to beat him off against a rock or tree, he claspeth close about his legges, and seldome doth the combate cease without the death of both the fighters. A fit embleme this, of those who fall whilest they suck the bloud of others, and perish in such gains as are purchased by the harms of those whom they strive to subvert.

An embleme from the Elephant.

Moreover, the *Elephants* have such a kind of modestie and shamefastnesse, that the male never covereth the female but in secret; and this never but once in two years; and that, when the male is five years old, and the female ten. From whence, * *Geminianus* gathers this instruction. By this example (saith he) men are taught honestly to use the acts belonging to their conjugall or matrimoniall estate both according to the place and time. *Arise and let us pray* (saith young Tobias to his wife) *that God would have pitie on us.* And in praying he likewise said, *I take her not for lust but uprightly: therefore mercifully ordain, that we may become aged together. And she said with him, Amen.* Of which carefull continence, *Geminianus* gives this reason why it ought to be in us; because we are children of the light, and may* not do as the heathens who know not God. Whereupon* S. *Augustine* saith, that they commit adulterie with their wives, who in the use of wedlock have neither regard of seemlinesse nor honestie. And *Hierome* likewise makes this assertion, that nothing is more shameless then to make a strumpet of a wife: meaning when they turn the remedie into a disease, through a lustfull

The marriage bed must not be abused.

*Genin. lib. 5. cap. 60.

Tobit 8. 4, 7, 8.

*Ezek. 8. 6. and 22. 10. Levit. 18. 19.

*See Mr Pok. in his *Aurea Cam.*

luſtfull, immodeſt, and immoderate uſe of the marriage bed.

Furthermore, the Elephants are long-lived, they have great pleaſure in good water, are very impatient of cold, and many of them live * almoſt 200 years.

*Munſt.

Alſo there is one ſingular propertie yet more to be obſerved in them, *viz.* that even the wild ones living in deſerts will direct and defend ſtrangers and travellers. For if an Elephant ſhall find a man wandering in his way; firſt of all, that he may not be affrighted, the Elephant goeth a little wide out of the path and ſtandeth ſtill: then by little and little going before him, he ſhews him the way; and if a Dragon chance to meet this man thus travelling, the Elephant then oppoſeth himſelf to the Dragon, and povverfully defendeth the helpleſſe man vvho is not able to defend himſelf. So ought it to be chiefly amongſt great men, and thoſe vvho are mighty; they ſhould not injure ſtrangers and travellers (as many do) vvhen they come into their territories, but rather by themſelves, or theirs they ſhould direct and ſuccour them from the hurts and harms of evil men.

A pattern for great men.

Gemin. lib. 5. cap. 96.

The *Rhinoceros* is a beaſt every vvay admirable, both for the outvvard ſhape, quantitie, and greatneſſe, and alſo for the invvard courage, diſpoſition, and mildneſſe. For this beaſt is next to the Elephant, every vvay as ſtrange, and in a manner exceeding him, unleſſe it be in his quantitie or height of ſtature: for although he may be as long, or perhaps longer then an Elephant, yet he is not ſo tall, neither are his legges ſo long; and for the length, it muſt be a large *Rhinoceros* vvhich can meaſure vvith the Elephant, for ordinarily the Elephant exceedeth, according to the teſtimonie of *Strabo* alledged by Mr *Topſell*.

The Rhinoceros.

In the * kingdome of *Bengala* great numbers of theſe beaſts may be found: their colour is like the rinde or bark

*Purch. 5 books of *Aſia*.

bark of a box-tree; their skinne upon the upper part is all wrinkled, and of such firmnesse and hardnesse that no dart is able to pierce it; and being wrinkled, it appeareth as if they were armed with shields, or set over with scales, which go also down along their legs to the very hoofs which are parted into foure distinct claws. Moreover, upon the nose of this beast there groweth a hard and sharp horn crooking a little towards the crown of his head, but not so high; it is flat and not round, and so sharp and strong that it will pierce through things of exceeding hardnesse: and from hence it is that he is called a *Rhinoceros* in the Greek; by which word is signified a * *Nose-horned* beast. He is headed somewhat like to a wild Boar, and hath again another horn growing upon his withers, but it is a small one. The manner of his fight with the Elephant I have alreadie mentioned: and as for his horn, teeth, flesh, bloud, claws, and whatsoever he hath without and within his bodie, it is good against poyson, and (as * Authours write) is much accounted of throughout all India. The reason of which virtue is thought to proceed from the soveraigne powers which are in those herbs that *Bengala* yieldeth; for in other places they are nothing so precious. Some have thought this to be the right Unicorn: but of that phancie see more, as followeth.

* Topsell.

Purch. ibid. ex Linscot.

The Unicorn.

Monoceros is a beast with one horn, called therefore by the name of an *Unicorn*: and albeit there be many horned beasts which may improperly be called Unicorns, yet that which is the right Unicorn indeed, is like unto a colt of two years and a half old, which hath naturally but one horn, and that a very rich one, which groweth out of the middle of his forehead; being a horn of such virtue as is in no beasts horn besides: which whileft some have gone about to denie, they have secretly blinded the eyes of the world from their full view of the greatnesse of Gods great works. For were it not said that the horn were excellent

horn were excellent and of ſurpaſſing power, I perſwade my ſelf it would never be doubted whether there were an Unicorn or no. But that there is ſuch a peculiar beaſt, the Scripture, both in Deuteronomie, Iſaiah, Job, and the book of Pſalmes, doth bear us witneſſe: In all which places how do Expoſitours tranſlate the originall word, but thus, *Unicornis*, or *Monoceros*, which in Engliſh is an *Unicorn*?

Deut. 33. 17. Iſai. 34. 7. Job 39. 9. Pſalm. 92. 10.

And again, it is the teſtimonie of *Ludovicus Vertomannus*, alledged by *Geſner*, *Topſell*, and others, that he himſelf ſaw a couple of the true Unicorns at *Mecha* in Arabia: one whereof had a horn of three cubits, being of the bigneſſe of a colt two years and an halfold; the other was much leſſe, and his horn ſhorter, about a ſpanne long, for he was but young: and both theſe were ſent to the Sultan of *Mecha*, for a rare preſent, by the King of Ethiopia, who ever deſireth to be in league with the ſaid Sultan, thinking nothing too dear to maintain his amitie. And certainly he could not ſend him a gift more welcome, eſpecially this being a beaſt ſo rare and ſeldome ſeen; which may be, in regard that it is a creature delighting in nothing more then in a remote and ſolitarie life.

The colour of theſe thus ſent was like a weaſel-coloured Horſe; the head like the head of a Hart; the neck not very long, and the mane growing all on one ſide; their legs ſlender and lean, like the legs of an hind; the hoofs on the forefeet cloven, and the hinder legges ſomewhat ſhaggie. The neareſt (of any beaſt better known) is the Indian Aſſe, and Indian Horſe; excepting that their hoofs are whole and not cloven, and their colour ſomewhat differing: for there is a horn grows out between their two eyes, like to the true Unicorn. By which it appeareth that of Unicorns there is one principall kind onely; the reſt are leſſe principall, and ſubordinate

dinate to him whoſe horn is the ſtrongeſt, ſharpeſt, and of the greateſt virtue. For in granting more kinds then one, I do not underſtand every beaſt with one horn; but onely ſuch *Monocerots* as have in their horns virtue againſt poiſon: like unto thoſe horſes of India mentioned but even now, and of which Mr *Topſell* writeth that they have Harts heads, and one horn, of which their Kings & Princes make cups to drink their drink againſt poiſon, finding a great preſervative to be in the ſaid horn. *Munſter* ſaith that the King of Ethiopia hath ſome ſtore of theſe beaſts; and Mr *Topſell* nameth two kingdomes in India (the one called *Niem*, the other *Lamber*) which be likewiſe ſtored with them.

A deſcription of the Unicorns horn.

Moreover concerning the horn, it is neither light nor hollow, nor yet ſmooth like other horns, but hard as iron, rough as any file, revolved into many plaits, ſharper then any dart, ſtraight and not crooked, and every where black, except at the top or point. It hath many ſoveraigne virtues, and with an admirable dexteritie expelleth poiſon: inſomuch that being put upon a table furniſhed with many junkets and banqueting diſhes, it will quickly deſcrie whether there be any poiſon or venime amongſt them; for if there be, then preſently the horn is covered with a kind of ſweat or dew. And (as it is reported) when this beaſt cometh to drink, he firſt dippeth his horn in the water, that thereby he may drive away the poiſon when venimous beaſts have drunk before him.

How hunters take them.

And again I find it recorded that the Indian and Ethiopian hunters catch of thoſe Unicorns which be in their countrey, after this manner. They take a goodly ſtrong and beautifull young man, whom they clothe in the apparell of a woman, beſetting him with divers flowers and odoriferous ſpices, ſetting him where the Unicorns uſe to come; and when they ſee this young man

man, whom they take to be a woman, they come very lovingly and lay their heads down in his lap: (for above all creatures they do great reverence to virgins and young maids) and then the hunters having notice given them, ſuddenly come, and finding him aſleep, they will deal ſo with him, as that before he goeth, he muſt leave his horn behind him.

Theſe, and many other things more, concerning this beaſt may be read in the large writings of *Geſner* and *Topſell*, whither I would wiſh the more inquiſitive to have recourſe.

The Lion.

Africa breedeth many *Lions*, and the colder the place is, the gentler they be: and in time of their coupling, eight or ten will follow one female, whereupon ariſe very terrible and bloudie battels among them. They engender backward; and ſo doth the Camel, Elephant, Rhinoceros, Ounce, and Tiger. They ſpare women rather then men, and prey not at all on infants, except in caſe of much hunger: and albeit the Lion be a fierce and cruell beaſt, yet he is ſaid to ſhew great clemencie to the humble and ſuch as proſtrate themſelves ſubmiſſively before him; which he will the ſooner do vvhen he hath lately filled his bellie vvith a former prey. The male uſeth not to feed vvith the female, but either of them apart by themſelves. The Lioneſſe or She-lion is the fierceſt, and alwayes the moſt cruell. Their tail is a token of their invvard meaning: for if it ſtirreth not, he is gentle and peaceable; but moving, he is angry. Theſe beaſts vvill keep revenge in mind a long vvhile, either againſt man or beaſt that hath hurt them. And in like manner they vvill as long be mindfull of a benefit, and do their beſt to make requitall, as is famous by that ſtorie of *Androdus* who was ſlave to a ſenatour of Rome; and one named *Mentor*, a man of *Syracuſa*, upon whom a Lion fawned to have him help his diſeaſed foot.

A ſtorie of a Lion.

For,

For, concerning the first; when *Androdus* fled from his master by reason of some hard usage that he received at his hands, by chance he happened to take up his lodging in a cave; which (unknown to him) was a Lions denne: where when he had been a while, not long before night the Lion came home from hunting, and having gotten an hurt upon his foot he no sooner espied the trembling man in this fearfull place, but he cometh gently unto him, stretching forth his foot, and making mone as though he desired help. The poore slave at the first expected nothing but death, neither did he think of any thing more then to have his sepulchre in the Lions bellie; but at the last perceiving what the matter was, he took the Lion by his paw, searched the wound, pulled out a thorn, bound up his foot and gave him ease: which kind office being performed, was first of all requited with a daily portion of provision which the Lion would bring in for his guest; and he poore helplesse man would rost it in the sunne as well as he could, and then eat it. But being wearie of this kind of diet, and as wearie of his solitarie life, he went away; for whose absence, the Lion (as himself could heare) made great mourning and lamentation. And see how it happened; this man did no sooner depart then he was taken by some whom his master sent to seek him; and then (alas) there is no way for him but one; die he must. Neither shall his death be other then a tearing in pieces by cruell beasts: for the Romanes had a custome to sit in their theaters and behold such bloudie games, and direfull pastimes; and therefore they would catch and keep beasts on purpose. But it fortuned that amongst other beasts taken this Lion was one, who being brought into the theater greedily rent in pieces such as were thrown unto him: yet when his old guests turn came, he forgot his furie and turned it into fawning, by which the poore slave perceived

perceived what Lion it was, and thereupon gathered up his ſpirits, renewing again his old acquaintance with his former friend, even to the admiration of all the beholders. And the matter being known and related to them, he had not onely pardon for his life, but the Lion alſo was beſtowed on him to wait upon him. *Ælianus* reports this ſtorie, and ſo doth *Aulus Gellius* in his *Attick nights. Hic eſt Leo hoſpes hominis; hic eſt homo medicus Leonis*, was that which the people would ſay when they ſaw him leade along his Lion through the ſtreets: *Here goeth* (ſay they) *the Lion which was the mans hoaſt; and there is the man who was the Lions Phyſician.*

And to ſhew that the Lion delighteth not to kill his prey before he be readie to eat it, appeareth by another ſtorie which I find related by Mr *Topſell*, in his hiſtorie of foure-footed beaſts.

Another ſtorie of a Lion.

A certain Engliſh man being turned Moor, and living in Barbarie, was told of a Lion which lay lurking not farre off; and he, to ſhew his valour, being half drunk, would needs undertake to go and kill him in the place where he was: whereupon he armed himſelf with a ſword, dagger, and musket; having alſo a long large knife about him. And when he came to the place where the Lion was, that he might ſhew himſelf valorous, he would not kill him as he lay aſleep, but toucheth him with the end of his musket that he might awake: which being performed, the beaſt ſuddenly mounted up and eagerly ſets upon this fool-hardie champion, throwing him preſently down to the ground: whereupon he could think of no other but a ſpeedie execution. But ſeeing the Lions bellie was lately filled with a former prey, he forbeareth to kill him; onely he ſtandeth over him and keeps him down with his paws, intending ſo to hold him untill he had a ſtomach to prey upon him. But in the mean time, this champion ſtudying how to acquit

himself, between hope and fear, draws out his long barbarian knife (for he had his hands at libertie) and with it he wounds the Lion two or three times : but he, desirous to possesse his prey against his need, never regarded from whence the wounds came, and thereupon he falls at the last fainting to the ground, and so dying delivers his prisoner against his will, who now might triumph in a conquest that was altogether beyond either hope or expectation.

These creatures delight much to feed on Camels flesh, and on the flesh of Apes : howbeit when they eat Apes, it is more for * Physick then for food : and sometimes they will catch the young Elephants. Neither do they drink often or overmuch; and having eaten to satietie, they use to fast * three dayes before they feed again. Their bones (saith *Munster*) be sound and not hollow, insomuch that some affirm fire may be struck out of them as from a flint : and sometimes being too fiercely exasperated to anger, they are in such a heat, that it even burns them up, and kills them. So have I seen some very powerfull, and exquisite in many things, and yet but slaves to their own passions ; ruling others but not able to command themselves : although there be few but know, that it is a * greater point of valour to subdue a mans self, then to conquer a strong and mightie citie.

What *Plinie* hath written of this beast may be seen at large in the sixteenth chapter of his eighth book ; to whom, and others, I referre such as desire more.

The Tiger.

Tigers, like lions, are bred in the East, South, and hot countreys, because their generation desireth an abundance of heat. It is a beast of a wonderfull swiftnesse: and in the proportion of his bodie he is like to the * Lionesse, footed like a Cat, and spotted like a Panther, excepting that the spots be long and all of a colour. Generally they be cruell, sharp, ravenous, and never so tamed but

Ælian. var. Hist. lib. 1.

Mun.

He is truly valiant that can overcome himself.

Fortior est qui se quam qui fortissimas urbes vincit.

* And note that his Mustachios are holden for mortall poison; causing men to die mad if they be given in meat.

but ſometimes they return to their former natures: but above all, in the time of their luſt, or when they be robbed of their young, they are moſt raging and furious. *Plinie* hath deſcribed the manner how the hunters get away their whelps very commonly. They come upon horſeback, and finding the old Tigers from home, they take up their young ones and poſte away as faſt as they can; and on the ſudden they find themſelves purſued, wherefore when the old one cometh near them, they let fall one of her whelps on purpoſe, that whileſt ſhe is carrying that to her neſt, they may eſcape ſecurely with the reſt. And ſometimes they make round ſpheres of *glaſſe which they caſt before her when ſhe cometh, and thinking (by reaſon of her own ſhadow) that ſhe ſeeth her young ones there, ſhe rolleth it to her denne, where ſhe breaketh it with her claws, and finding her ſelf deluded runneth after the hunters again, by which time they are gone too farre for her to find.

*Plin. lib. 8. cap. 18.

*Munſter, Topſell.

There is an * herb near the river *Ganges*, growing like *Bugloſſe*, the juice whereof is ſuch that if it be poured into the mouth of their dennes, they dare not come forth, but will lie howling there till they die.

*Topſell.

The *Panther* is a beaſt little differing from a *Leopard* or *Libbard*; *ſome think they differ in nothing but in ſex. In Greek the generall name is *Panther*; the ſpeciall names, *Pordalis* and *Pardalis*. *Pordalis* is taken for the male, & *Pardalis* for the female. And in Latine it is called *Pardus* & *Panthera*; where it muſt be again obſerved that *Pardus* ſignifieth the male Panther, and *Panthera* the female. Neither is the difference betweene the Leopard and Panther onely in ſex, but rather in reſpect of a mixt and ſimple generation: for there is no Leopard or Libbard, but ſuch as is begotten betweene the Lion and the Panther, or the Panther and the Lioneſſe.

The Panther.

*Plin. lib. 8. cap. 17.

How the Leopard is begotten.

This is a beaſt which hath varietie of colours, a ſweet breath,

breath, and is very fierce and wild, inſomuch that ſome have therefore called him a *Dog-wolfe*; and yet being full, hee is gentle enough. He ſleepeth three dayes (ſaith *Munſter*) and after the third day he vvaſheth himſelf and cryeth out, and vvith a ſvveet ſavour vvhich cometh from his breath, he gathereth the vvild beaſts together, being led by the ſmell: and then (ſaith *Plinie*) doth he hide his head very cunningly, leſt his looks ſhould affright them; vvhereupon, vvhileſt they gaze upon him, he catcheth his prey of which he pleaſeth. So have I knovvn ſome hide their ill meanings vvith fair & ſvveet-breathed vvords; having hony in their mouthes, but gall in their hearts; and a direfull intent cruelly to hurt vvhen they ſeem, moſt of all to pleaſe. For ſugred ſpeeches vvill catch the credulous; neither is all gold that fairly gliſters.

An embleme from the Panther, concerning fair tongues and falſe hearts.

Novv the reaſon vvhy theſe beaſts have ſuch a ſvveet breath, I take to be in regard that they are ſo much delighted vvith all kind of ſpices and daintie aromaticall trees: inſomuch that (as* ſome affirm) they vvill go many hundred miles in time of the yeare vvhen theſe things are in ſeaſon; and all for the love they bear to them. But above all, their chief delight is in the gumme of camphorie, vvatching that tree very carefully, to the end they may preſerve it for their ovvn uſe.

* *Topſell.*

The Camel.

Of *Camels* there be chiefly three ſorts: the firſt called *Hugiun*, of great ſtature and ſtrength, able to carrie a *thouſand pound weight: the ſecond leſſe, with two bunches on the back, and ſometimes one upon the breaſt; theſe are called *Becheti*, are found onely in Aſia, & are fit both for carriage, and to ride on. The third ſort is meagre & ſmall, not uſed to burdens, yet able to travell above an hundred miles in one day: this kind they call *Raguahil*.

* *Purch.*

The Arabian & Bactrian Camels, although they vvant horns, yet they have* teeth but on one ſide. And of all the ſorts, their necks are long & nimble, by which the whole bodie

* *Plin. lib. 8. cap. 12.*

bodie, is much relieved, ſeeing it can reach to moſt parts: their heads are ſmall, and feet fleſhie, in vvhich regard they uſe to be ſhod vvith leather for fear of graveling; I mean ſuch as are tame and made ſerviceable. They love graſſe, eſpecially the blades of barley; and vvhen they drink, the vvater muſt not be clear but muddie. The ſurname therefore of the Camel, is *Trouble-bank*; for they vvill * mud the vvater vvith their feet, othervviſe they take no delight to drink it. So have I ſeen ſome, never better pleaſed then vvhen they trouble the clear fountains of juſtice and pure doctrine, vvith the muddie ſtreams of injuſtice and errour. Or ſome, never better cheered then vvhen they may drink deeply of the dirtie puddles of vvorldly vvealth, little regarding the ſvveet taſte of the vvater of life, vvhich is a clear river running from the throne of God and the Lambe, Rev. 22. And as for the bunch upon the Camels back, the Scripture doth thereby expreſſe the ſvvelling pride and confidence of rich worldly men, who as hardly enter into the kingdome of God, as the Camel vvith his bunched back can go through the * eye of a needle.

*Plin. ibid.

An emblème from the Camel, concerning thoſe who preferre earth before heaven.

*Matth. 19. 24.

The Horſe and the Camel are great adverſaries: and vvith his very ſight and ſtrong ſmell, the horſe is terrified. *Cyrus* therefore being excelled by the Babylonians in horſemanſhip, uſed this ſtratagem of the Camels.

The Horſe and Camel great enemies.

And as for our fine ſtuffes, as grogeram, and chamblet, they be made of Camels hair, as ſome affirm: as alſo there is a courſer hairie cloth to be made of the worſt of this hair, ſuch as was that garment vvorn by John Baptiſt in the vvilderneſſe.

Stuffes made of Camels hair.

And of the Camels this one propertie more; when their maſters load them, they vvill bovve themſelves, and ſtoup dovvn to the very ground vvith their knees, patiently enduring to take up their burden. So have I ſeen ſome, vvillingly humbled under the croſſe, and as patiently

A leſſon of patience and humilitie taught by the Camel.

ſtouping to take it up, and followv their maſter Chriſt vvho vvent before them. For it is a true rule, that God can and doth love his children vvell, although he make no vvantons of them.

The Dromedarie. Moreover the *Dromedary* is a kind of Camel, but leſſe, and farre more ſvvift.

The Cameleopard. And as for the *Cameleopardus*, he is begotten by a mixt generation betvveen the Camel, and Leopard or Panther.

The Hyæna The *Hyæna*, as it is deſcribed by * *Plinie*, is a beaſt vvhoſe neck hath no joynt, and therefore he ſtirres not his neck but vvith bending about his vvhole body. He vvill imitate humane voice, and dravving near to the ſheep-coats, having heard the name of ſome of the ſhepherds, he vvill call him, and vvhen he comes, devoure him. His eyes have many colours; and the touch of his ſhadow makes a dog not able to bark. And (as the Magicians vvould make us believe) this beaſt hath the povver of incantation: they therefore tell many ſtrange things vvhich they be able to do.

*Lib. 8 cap. 30.

Neither is this any other then the *common or vulgar *Hyæna*, vvhich is likevviſe called *Lupus veſpertinus a wolf of the night*, being in quantitie of body very like a Wolf, but much more rough in his hair, and briſtled all along his back like a horſes mane, the middle vvhereof is ſomevvhat crooked. His colour is yellovviſh, but ſpeckled on the ſides vvith blevv ſpots.

*Topſell.

*Idem. pag. 439.

The ſecond kind is called *Papio* or *Dabuh*, bigger and rougher then the former, vvith feet ſomething like to a mans hand. They breed much about Ceſarea; and their cuſtome is, being gathered together, for one of them to go before his company ſinging and hovvling and all the reſt anſvvering him vvith a kind of correſpondent tune; vvhoſe voices are ſo ſhrill and ſounding, that although they be remote and farre off, men may heare them as if they

they vvere hard by: and vvhen one of them is ſlain, the reſidue flock about his carcaſe, hovvling as if they ſhould make funerall lamentations for the dead. They ſometimes, being compelled by hunger, vvill ſearch into the ſilent graves of dead men.

The third kind is the *Corcuta*, and this happeneth vvhen the Lioneſſe and the Hyæna do ingender together. *The Corcuta.*

The fourth is *Mantichora*; he is bred among the Indians, having a treble rovv of teeth beneath and above, vvith a broad face faſhioned like to the face of a man, a beard both on his chin and upper lip; his eyes are gray, and his colour red, and in the ſhape of his body and legs like to a Lion. His tail is long and ſlender, armed at the end vvith ſharp quils, vvith vvhich he vvoundeth the hunters vvhen they ſet upon him; and this is ſtrange, that the quils being darted off do preſently grovv again. And as for his chief delight, it is to eat mans fleſh. *The Mantichora.*

The *Zebra* is a beaſt vvhich amongſt * all creatures both for beautie and comelineſſe is admirably pleaſing. He reſembles a horſe of exquiſite compoſition, but not altogether ſo ſvvift, all overlaid vvith partie-coloured laces and gards, from head to tail. In Africa they abound, and live in great herds together. *Zebra.* *Purch. lib. of Africa, cap. 1.

In the countrey of Sardinia there is a certain beaſt vvhich they call *Muſlo*, the like vvhereof (as * ſome affirm) is not in all Europe. It hath a skinne and hairs like unto a Deer or Hart, crooked horns like unto a Ramme, vvhich bend backvvard about the eares. In bigneſſe he may be compared to a Buck: he feedeth onely upon graſſe and herbs, and keepeth moſt about mountains, is very ſvvift in running, and his fleſh is very good to be eaten. *Muſlo.* *Munſt. Coſ. Epit.

In Virginia there is a beaſt called *Ovaſſom*, vvhich hath a head like a Svvine, a tail like a Rat, as big as a *The Ovaſſom.*

Cat, and hath under his belly a bag, wherein they carrie their young. *Purch.*

Virginia Dogs, Wolves, Foxes, &c.

Moreover I find in the said Authour, that their Dogs in that countrey bark not, their Wolves are not much bigger then our Foxes, and their Foxes like our silver-haired Conies, and of a differing smell from ours.

The Wolf.

The *Wolf* is a ravenous and devouring beast, and rightly surnamed *Spoil-park*; and those of the common sort have grizled hairs, being white under the belly, a great head, and armed with big and long teeth, sparkling eyes, and short prickt eares; and for his feet, they be something like to the feet of a Lion. He is therefore called *Lupus* from *Leopes*; *quia pedem quasi pedes Leonis habet.*

Where these creatures live, the people are much infested with them: they will sometimes steal from their folds abroad, and sometimes do them mischief at home. When they come to the sheepfolds, they observe which way the * wind bloweth, and then they come marching against it, that thereby they may the better deceive the shepherd and his dogs. And when they prey upon Goats, they * hide themselves under the leaves of trees that they may the more easily obtain their desire. When they catch little children, it is said that they will play with them for a while (as the cat playes with the mouse) and at the last devour them.

**Gemm. lib. 3. c. 39.*

**Ibid.*

**Or else come with the green leaves and small boughs of Osiers, &c.*

Plin. lib. 8. cap. 22. *Plinie* and *Olaus Magnus* write, that Egypt and Africa bring forth but small Wolves in respect of those which are in the Northern parts of the world: and as the Elephant is impatient of cold, so these beasts do as much detest heat. And again there be certain mountains which part the king domes of *Swetia* and *Norway*, upon which live whole herds of white Wolves.

Ola. Mag. lib. 18

**Topsell.* 'Some say that if the heart of a Wolf be kept dry, it will render a most fragrant or sweet smell; and in the bladder

bladder of a Wolf is a certain ſtone of a ſaffron or hony colour, which inwardly containeth as it were certain weak ſhining ſtarres. But this (me thinks) is ſtrange. The Ravens are in perpetuall enmitie with Wolves, and the antipathie of their natures is ſo violent, that if a Raven eat of the carcaſe of a beaſt which the Wolf hath either killed or formerly taſted of, ſhe preſently *dieth : and again it is reported that when a Wolf eſpieth a ſingle paſſenger travelling by the way, if he thinks himſelf not able to ſet upon him, he will make ſuch a piteous howling that his companions ſuddenly come to help him.

*Ibid.

Romulus and *Remus* were ſaid to be nurſed by a ſhe-Wolf: but *Lupa*, ſignifying *a devouring Harlot*, may rather be applyed to *Laurentia* the wife of *Fauſtulus*, who had played the harlot with certain ſhepherds.

Romulus & *Remus* not nurſed by a Wolf.

Wolves have no ſocietie but with beaſts of their own kind : and above all creatures, they and dogs are moſt ſubject to madneſſe; the reaſon of which is, becauſe their bodies are cholerick, and their brains increaſe and decreaſe with the moon.

And as for their ſeverall kinds, ſee more in *Geſner*, *Topſell*, *Olaus Magnus*, and ſuch others.

Vulpes, the *Fox*, is a ſubtill craftie creature. They differ in colour according to the climate wherein they be bred, and ſometimes alſo in quantitie. The urine of this beaſt falling upon any herb or graſſe, drieth it up, and cauſeth it to wither. His fat or greaſe is good againſt the cramp or gout : and ſo alſo is his skinne, if it be wrapped about the grieved place ; teſtified by *Olaus Magnus* in the eighteenth book of his Northern hiſtorie.

The Fox.

Moreover, concerning the ſubtilties of this beaſt, they be in a manner infinite. By putting his tail into the water he will catch an abundance of crabs and lobſters at his

The ſubtilties of the Fox.

his pleaſure; for they take great delight to hang and enwrap themſelves into ſuch bruſhie ſtuffe, and he hath as great delight to fiſh them out.

And again, when cold, ſnow, and hunger ſhall oppreſſe him, coming near ſome farm or manſion-houſe, he feigneth a kind of barking like a dogge, that thereby the houſhold beaſts may more confidently keep themſelves without fear, being often uſed to the barking of a dogge: and ſo having gotten himſelf near unto his prey, he will lie upon his back with his belly upwards, mouth open, tongue out, and every way ſeeming as if he were dead; then the hens, or geeſe, or what elſe is fit for him, are ſuddenly ſurpriſed and cunningly caught, whileſt they little dreamed of ſuch a ſubtiltie.

Sometimes again he will roll himſelf in red earth, and beſmearing himſelf with it as if he were bloudie, he will again lie on the ground, verily ſeeming as if he were dead, by means whereof he inviteth the fowls to come and prey upon him: but he deceiveth them in his craftie wilineſſe; and being deceived, they are taken.

Alſo, he ſometimes eſcapeth the danger of dogges by a counterfeit barking, by which he feigneth himſelf to be one of their kind. And by his ſubtiltie he eſcapeth from the ſnares, and that not ſeldome: for if he be taken by the foot & cannot free himſelf, he will proſtrate himſelf upon the ground, and ſhew no appearance either of life or breath: inſomuch that when he cometh who ſet the ſnare, and findeth him in this poſture, he will ſuppoſe him to be no other then he ſeemeth; and then looſing the ſnare without any thought that he ſhould eſcape, he ſuddenly riſeth and runnes away. The like was credibly reported to me of a Fox, creeping into a mans houſe at a little hole, who filling himſelf too full, knew not how to get out; whereupon in the morning he was found as dead: the man kicks him about the houſe,

houſe, and at the laſt throws him out of doores on the dunghill; where he was no ſooner with joy arrived, but up he ſtarts, and findes his legges as readie to carrie him as he was willing to eſcape.

Moreover, being hunted he will ſometimes runne among a flock of ſheep or goats, and get upon the back of ſome one or other of them, forcing that ſheep or goat to runne; the reſt follow, inſomuch that the hunters are unwillingly compelled to call in their dogges, for fear they ſhould ſeiſe upon, or harm the flocks.

How the Fox catcheth fleas.

And to rid himſelf from fleas, he hath this device, reported by *Olaus Magnus*. He takes in his mouth a little wiſp of ſoft hay, with which he wrappeth a little hair; and coming to a river, he puts himſelf in, all but the head: then when the fleas are come up ſo high as his head, he ſinketh lower, even till the hay in his mouth touch the water; by means whereof the fleas are driven thither: and being there, he lets the wiſp go, and ſo clears himſelf.

In like ſort he * deceiveth the Hedge-hogge; for when the Hedge-hogge perceiveth the Fox coming to him, he rolleth himſelf together like a foot-ball, and ſo nothing appeareth outwards but his prickles, which the Fox cannot endure to take into his mouth, and therefore the craftie Fox, to compaſſe his deſire, licketh gently the face and ſnout of the Hedge-hog, by that means bringing him to unfold himſelf again, and to ſtand upon his legges; which being done, he inſtantly devoureth him by poyſoning him with the urine that he maketh upon the Hedge-hogges face.

*Topſell.

He hath a trick likewiſe to * revenge himſelf upon the Brock or Badger; for there is great enmitie between them: the Fox therefore finding the Badger gone from home, for the ſpite he bears him, will come and with

*Gesnia. lib. 5. cap. 3.

with his pisse defile the Badgers denne: whereupon he is forced to forsake it and seek a new.

A cunning trick of a tame Fox.

But was not that a cunning tame Fox who would stand all the day quietly chained according to his masters mind, and when night came would slip his collar, and go out to kill the neighbours geese; and before morning come again, and put his head within his collar, presenting himself to his master, as if he had never gone out?

An embleme from the Fox and her young, concerning false friends.

Moreover, the young whelps of the Fox, when they can find no more milk in the paps of their damme, will bite them with their teeth, and rend and tear them, reputing them as strangers. So have I seen fraudulent friends, who will love no longer then you feed them. *Tam diu stat, quamdiu utilitas durat*, saith *one: *They abide so long as there is profit for them*: according to that of *Seneca*, *Qui utilitatis causâ assumptus fuerit, tã diu placebit, quamdiu utilis erit.* And indeed it is too true, as common experience beareth witnesse.

*Idem.

The Lynx.

Lynx is a spotted beast much like a Wolf; it hath a more piercing sight then any creature in the world. And of Lynxes it is said there be two kinds; the one a greater, which hunteth Harts and great beasts; the other a smaller, which hunteth Wild-cats and Hares. Of this last kind *Olaus Magnus* writeth, that there be some of them in the Northern woods of *Swetia* and *Norway*: and generally there be many countreys both in Europe, Asia, and Africa, which abound with both kinds. But above all, those which are bred in Europe are commended for the best spotted: and in Europe, those of *Scotland* and *Swetia* are * most beautifull.

*Topsæx Ballon.

He is a beast as ravening as a Wolf, but more craftie; and, as he findes his opportunitie, will prey upon man as well as beast. Howbeit, in the summer time they be very weak and live faintly among the rocks, never straying farre from home, hurting no man untill the Autumne.

tumne. And for the manner of catching their prey, moſt commonly it is thus; They vvill get up into trees, and there lie in wait for their bootie untill they eſpie it under the boughs, and then ſuddenly do they leap into the neck of it, vvhether it be *a man or great beaſt; vvherein they fix their clavvs ſo faſt, that no violence can ſhake them off: and then vvith the ſharpneſſe of their teeth, they firſt bite into the skull, and eat out the brains.

*Id. in ibid.

The ancient Pagans dedicated this beaſt to Bacchus, feigning that vvhen he triumphed in his chariot of vine-branches, he vvas dravvn by Tygers and Lynxes.

They love their young ones very entirelie: and that ſome ſhould think they are bred betvveen a Wolf and a Hind, is utterly vvithout reaſon, ſeeing there is ſuch hoſtilitie and adverſe diſpoſition in their natures.

It is reported that vvhen they be taken they vvill ſhed forth many tears, and vveep very pitifully: and their urine congealed, turneth it ſelf into a precious ſtone, vvhich for brightneſſe reſembleth the Amber being a ſtone of ſovereigne virtue: and they, knovving their urine to be thus beneficiall, rather then man ſhould find it, they uſe to hide it in the earth or ſand; and yet they are deceived: for (as * *Plinie* vvriteth) it is there ſooneſt of all converted into a ſtone, and not ſeldome found. Which, by * *Geminianus*, is rightly made an embleme of the envious man, vvho vvill not onely endeavour to do hurt, but be heartily ſorie if by chance it be his hap to do any one good.

An embleme of envie.

*Lib. 37 cap. 3.

*Lib. 5 cap. 71.

The *Beaver* is a beaſt of a very hot nature, living both in the vvater and on the land, and differeth from an Otter onely in the tail. Germanie, Spain, France, Italy, and divers other places abound vvith theſe beaſts. His ſtones are much uſed in Phyſick, the hunters therefore catch him that they may geld him; vvhereupon he is called *Caſtor*: for it is but a fable to ſay he biteth out his

The Beaver.

ovvn

own ſtones when they come to take him; for indeed they lie too cloſe in his bodie to be pulled out with his teeth. Theſe ſtones, and genitalls, the Phyſicians call *Caſtoreum*: and as for his skinne and hairs, their uſe is alſo excellent.

The Otter.

The *Otter* is ſomething leſſe then a Beaver, and may well be called *A dog of the water*: and (as Mr *Topſell* thinketh) is, without all doubt, a kind of Beaver. It is a ſharp-biting beaſt, never letting his hold go untill he make the bones to crack between his teeth: and as for the females, they uſe to give ſuck to their whelps, untill they be almoſt as big as themſelves.

*Lib. 18.

Olaus Magnus calleth them * *Lutræ, quadrato ore mordaces*; and telleth us that ſome great men in Suetia keep tame Otters in their houſes, which are ſo tractable that the cook of the kitchin can ſend them into the fiſh-ponds to bring him fiſh for his maſters dinner.

A medicine for the megrim, and palſie.

Their skinnes (beſides other uſes) if they be worn in caps, or ſtocking-ſoles, are good and wholeſome againſt the palſie, megrim, and other pains of the head. *Topſell.*

The Squirrell.

Sciurus, the *Squirrell*, is a quick nimble creature which will skip from tree to tree with great facilitie. When ſhe is out of her neſt, her tail ſerveth to ſecure her both from ſunne and rain. Howbeit, it is ſometimes a hurt unto her: for the hairs of it be ſo thick, that ſtriving to ſwimme over a river, her tail is ſo laden with water, that ſinking ſhe drowneth. Wherefore nature hath taught her this prettie piece of policie; namely, to get upon a little piece of wood, which ſwimming wafts her ſecurely over: and wanting a ſail, her buſhie tail ſet up and ſpread abroad, ſupplies the room of that defect.

Olaus Mag. ibid.

**Plin. lib. 8. cap. 38.*

**Plinie* ſaith they have great foreſight in the change of weather, and will therefore ſtop up the hole of their neſt

neſt on that ſide from whence the tempeſt is like to blow, opening a paſſage in the contrarie place, or ſide oppoſite to it. The like whereunto is affirmed of the Hedge-hog alſo.

Their skinnes are exceeding warm, and their tails profitable to make bruſhes: their fleſh is tender, and in a manner comparable to the fleſh of Kids or Conies; & yet not very wholeſome, except the ſquirrell were a black one.

When this beaſt is hunted, ſhe cannot be driven to the ground to creep into hedges, unleſſe extremitie of faintneſſe cauſe her ſo to do through an unwilling compulſion: for ſuch (*ſaith one) is the ſtately mind of this little beaſt, that while her limbes and ſtrength laſteth, ſhe tarrieth and ſaveth her ſelf in the tops of tall trees, diſdaining to come down for every harm or hurt which ſhe feeleth; knowing indeed her greateſt danger to reſt below, among the dogs and buſie hunters. From whence may be gathered a perfect pattern for us, to be ſecured from all the wiles and hungrie chaſings of the treacherous devil; namely that we keep above in the loftie palaces of heavenly meditations: for there is ſmall ſecuritie in things on earth; and greateſt ought to be our fear of danger, when we leave to look and think of heaven.

*Topſ. p. 638.

An emblem from the hunted Squirrell, concerning the ſmall ſecuritie in things on earth.

But I come to another beaſt; which in *Topſells* hiſtorie is thus deſcribed. There is in the Newfound World farre into the South, a ſtrange and terrible beaſt, which they of the countrey where it liveth, call a *Su*; ſo named becauſe it liveth near the water, and *ſu* in their language ſignifieth *water*. It is a creature of a very deformed ſhape, monſtrous preſence, a great ravener, and altogether untameable. She hath a mightie great tail, which is bruſhie, fierce talons, and a cruell look. Now when hunters (for the deſire of her skinne) ſhall ſet upon her, ſhe flieth very ſwift, carrying

A ſtrange beaſt called a Su.

carrying her young ones upon her back, and covereth them with her broad tail. And the hunter, not daring to encounter with her but by treacherie, is forced to this project; namely to dig great holes in the ground and cover them over with boughs, ſticks, and earth: which he doth ſo weakly, that if the beaſt chance at any time to come upon it, ſhe and her young ones fall down into the pit, where they have no way but one, they muſt be taken. But this cruell, untameable, impatient, violent, ravening, and bloudy beaſt, perceiving that her naturall ſtrength cannot deliver her, firſt of all, to ſave her young ones (as ſhe ſuppoſeth) ſhe deſtroyeth them all with her own teeth, ſo that never any of them could be taken and tamed; and then howleth and roareth at the hunters who come about her; but now they need not fear her, ſhe is ſecure enough: whereupon they uſe means, quickly to diſpatch her, and by fatall blows to ſtop her mouth from bawling. Then they take off her skinne, and leave her carcaſe in the earth: and of what uſe her skinne is, I have not heard.

The Hedge-hog.

The *Hedge-hog* is a beaſt well known, about the bigneſſe of a conie, but like to a Swine; having her body beſet with and compaſſed all over with ſharp thorny hairs, or pricking briſtles, which ſhe ſetteth up or keepeth down at her pleaſure: and by theſe ſhe defendeth her ſelf from thoſe who ſeek her life; which is attributed to her as a kind of craft and wilineſſe. Some therefore have likened a deceitfull man unto this beaſt, who turneth and windeth himſelf for all advantages, and is now this, then that, and ſometimes neither this nor that.

An embleme from the Hedge-hog.

Between him and the *Serpent there is mortall hatred: for it is ſaid that the ſerpent will ſeek out the hedge-hogs den, and then falleth upon him with purpoſe to kill him, but the Hedge-hog draweth himſelf up together round like

*Toſ. pag. 279.

like a football, ſo that nothing appeareth but his thornie pricks: whereat the Serpent biteth in vain, for the more ſhe laboureth to annoy the Hedge-hog, the more ſhe is wounded and harmeth herſelf; howbeit the height of her mind, and hate of her heart be ſuch, that they will not ſuffer her to let him go, till one or both parties be deſtroyed: yea it ſometimes ſo happeneth, that the leaſt creature hath the beſt ſucceſſe, and gets the conqueſt. So have I ſeen ſome provoke others to their own ruine: for if proud minds and high ſpirits could alwayes have their wiſhed ends, the low ſhrubs ſhould never thrive, nor mean eſtates enjoy the ſunne.

An emblem from the Serpent and Hedge-hog, concerning mean eſtates.

Moreover (as is reported) this beaſt altereth and changeth her neſt according to the blowing of the North or Southern wind. So have I heard of thoſe, whoſe care hath been to apply themſelves unto the times, apt to turn with every wind, altering their judgements and opinions in time of perſecution, from that which they held in time of peace and quiet: whereas a hardie ſouldier is never known but in a winter ſiege, nor a true Chriſtian but in a fierie triall.

The Hedge-hog changeth his neſt.

The emblem detecteth Time-ſervers, and unconſtant Profeſſours.

Next after the Hedge-hog I may mention the *Porcupine*, or *Porcuſpine*, from *Porcus* and *ſpina*; ſo called, becauſe he is, as it were, a thornie-hog, or another Hedge-hog ſomething differing from the former: for the vulgar Hedge-hog is *Ericius ſylveſtris*, and the Porcupine *Ericius montanus*. This beaſt is uſually bred in India and Africa, and brought up and down in Europe to be ſeen for money.

The Porcupine, or *Mountain Hedge-hog.*

The generall proportion of his bodie is like a Swines; and ſeldome is it that they be bigger then a pig of half a yeare old. But in the particular members there is ſome difference, as in his eares which are like to the eares of a Man, his mouth ſomewhat like to the mouth of a Hare, but with a longer ſlit, and with three of his

foreteeth in his upper jaw hanging out of his mouth: his two hinder feet are ſomething like the feet of a Bear, and thoſe before like the feet of a Badger; and in a word, his bodie is beſet with certain ſharp quills or prickles, which, when he is hunted, he can dart off either in the mouthes of the dogs, or legs of the hunters. And of theſe quills men make wholeſome tooth-picks; for it is ſaid that if we ſcrape our teeth with theſe, they will never be looſe. *Topſell.*

The Armadill.

Armadilio is a beaſt in India like unto a young pig, covered over with ſmall ſhells like unto armour: it lives like a mole in the ground.

The Alborach.

The *Alborach* is a fair white beaſt like an aſſe, frequent in the Turkiſh territories, upon which beaſt *Mahomet* was carried up to heaven; as the blaſphemous Prieſts of that nation perſwade the ſillie pilgrims of *Mecha. Idem.*

The Hare.

The *Hare* is a fearfull creature and well known to every one. *Geſner* deſcribes her amply in his hiſtorie of beaſts, as alſo *Topſell*,* *Plinie*,* *Olaus Magnus*, and ſuch others. Now the cauſe of fear in this creature, is in regard that ſhe hath no other arms to defend her from being taken, but her little prettie nimble legs and ſwift running. It is ſaid that when they watch they ſhut their eyes, and when they ſleep they open them; which how true it is, I know not: howbeit the Egyptians, when they would ſignifie an open and manifeſt matter, uſed to picture an Hare ſleeping.

*Lib. 3. cap. 55.
*North. hiſt. lib. 18.

Moreover, it is eaſily ſeen that the Hare hath longer legs behind then before, and ſo runneth faſter up the hill then down; contrary to almoſt any other beaſt, for they make more ſpeed downward then up. Whereby (ſaith *one) may be ſignified, that whereas moſt men in the world go down the way which leadeth to deſtruction, he which is good, will imitate the watchfull Hare, and

*Willet on Levit

and climbe up cheerfully the way to heaven: which was prefigured by ascending up to Sion, *the mountain of the Lord*, Psal. 24. 3.

An embleme from the Hare, concerning the waves to heaven and to hell. Another.

And again, the Hare hath very long eares, is quick in hearing, but dull of sight; which, to applie it as an embleme, may be thus; The * eare, being the instrument of hearing, is *sensus doctrinæ, the sense of doctrine*, and gate to let in good instruction; but the eye, being the sense of seeing, is the instrument of delight and vanitie. Wherefore we should be swift to heare things for our instruction, and shut our eyes from beholding things that tend to vanitie.

*Idem ibid.

How to use our hearing and seeing.

The Conie.

The *Conie* is a beast near of kind to the Hare: in some countreys they * begin to breed being but six moneths old, but in England at a yeare old, and so continue bearing every moneth, or at the least seven times in one yeare. Their young are blind at the first, and (like whelps) see not untill they be nine dayes old; neither hath their damme any suck for them till she hath been six or seven houres with the male, or at the least she cannot suckle them for the desire that she hath to accompanie the buck, which if she be not presently permitted to do, she will have no propensitie any more untill 14 dayes after.

*Topsell.

The males will * kill the young ones, if they come at them, as the he-cat useth to do; and therefore it is thought that the females use to cover up their nests with earth, and keep them close untill they be ready to runne. Their flesh is * commendable, light of digestion, wholesome, cleanly, nourisheth temperately and firmly: and what commoditie a good warren of conies bringeth toward the keeping of a good house, men, who love hospitalitie know very well. Howbeit they have sometimes proved dangerous about cities and castles by undermining their walls: for (as *Plinie* writeth in the 29 chapter

*Markhams Meth.

*Haven of health, pag. 119.

of his eighth book) there was a town in Spain overthrown by the digging of conies; and one again in Theſſalie deſtroyed by the caſting of moles. It is not good therefore to let them have a freedome of breeding too near our houſes for fear of damage. To conclude,* They uſe not to live very long, and chiefly they take delight in hard and ſandie grounds which are drie; for they have no greater enemie then the wet: from whence it proceedeth, that their greateſt infirmitie is rottenneſſe. And therefore for thoſe who keep tame conies, *Markham* teacheth that they ſhall onely take the fineſt, ſweeteſt, and drieſt hay that they can get, and mix it very well with the herb hare-thiſtle, and therewith feed their conies; which medicine will both cure and prevent the foreſaid maladie. And note, that in India there is a little beaſt called a *Pig-conie*, with ſhort round eares, and a bodie ſomewhat rounder and fuller then our conies.

*Mark. ibid.

The Ferret.

The *Ferret*, in Latine is called *Viverra, quaſi vivens in terra*, as living in the earth, creeping into, and ſearching in the holes thereof; by which means they infeſt no creature more then the conie. This is a bold and audacious beaſt (though little) and an enemie to all other, except their own kind: and when they take a prey, their cuſtome and manner is, onely to ſuck in the bloud as they bite it, and not to eat the fleſh; and if at any time their prey ſhall be taken from them, they fall a ſqueaking and crying. Such (ſaith one) are the rich men of this world, who yell, and crie out, when they part with their riches; weeping and wailing for the loſſe of ſuch things, as they have hunted after, with as much greedineſſe as want of pitie: in whoſe commendation, I think, as much may be ſaid, as was once by a preacher at the black funerall of an uſurer; of whom there is this ſtorie.

An emblem from the Ferret, concerning covetous rich men.

A ſtorie of an uſurer.

A great rich uſurer, having purchaſed a mighty eſtate, was at the laſt ſent for by death to leave the world: and lying

lying upon his bed, the Doctours and Phyſicians finding his ſickneſſe to be mortall, give him over. Then do his friends about him ſend for a Divine to come and comfort him; who willingly tells him of many comforts for his ſouls health, and amongſt other things puts him in mind, of this, *viz.* That he had been a great purchaſer upon earth, but now he muſt ſtudie for another purchaſe, which was the kingdome of heaven. Now the uſurer turning upon the other ſide, at the hearing of the word *purchaſe*, anſwered, *I will not give more then according to fifteen years for a purchaſe*, and ſo died. Afterwards, this gentleman preaching at his funerall, in the concluſion of his ſermon ſaid onely thus; *Brethren, it is now expected that I ſhould ſay ſomething concerning our brother here deceaſed: I will end it in few words, namely theſe: How he lived, you know; how he died, I know; and where his ſoul now is, God Almightie knows.*

The *Poul-cat*, or *Fitch*, in Latine is called *Putorius*, *a Putore*, becauſe of his ill ſmell; for when they are provoked or ſtirred, they ſtink grievouſly. Their delight is to ſuck egges; kill and eat Hens and Chickens: and it is worth obſerving, that their craft in devouring their prey is ſingular; for to the intent that the ſillie creatures to be devoured may not betray them to the houſekeepers, the firſt part that they lay hold on with their mouthes is the head of the Hen or Chicken, by which means they bite off their heads, and ſo keep them from crying. *The Poul-cat.*

The *Weaſel* in Latine is called *Muſtella*, from μῦς and ἕλλω, of ſnatching up of mice: for (though an enemie to pullen) ſhe devoureth and deſtroyeth mice: and becauſe ſhe hath been often ſeen to carrie her young ones in her mouth, ſome have thereupon ſuppoſed, that ſhe conceived by the eare and brought forth by the mouth: and for this cauſe *Ariſteas* (mentioned by *Geſner* and *Topſell*) writeth that the Jews were forbidden to eat them; for *The Weaſel.*

this their action is an embleme (ſaith he) of folly and fooliſh men, which can keep no ſecrets but utter all that they heare: for there be many, who when they have heard tales with their eares, enlarge them with their tongues, and by adding to reports turn mole-hills into mountains, *& ſic creſcit eundo*; becauſe as many have itching eares, ſo ſome have ſcratching and augmenting tongues, deſiring to be heard as the reporters of news. But the Egyptians turn it into another ſigne, and ſay that their copulation at the eare, and generation at the mouth, are emblemes of ſpeech, which is firſt taught to the eare, and then uttered by the tongue. All which are prettie phancies, although they be founded upon a miſtaken ground; as before I ſhewed.

Howbeit, this is recorded for a truth, that whereas the Baſilisk killeth all creatures with her poyſon that approch unto her, or contend with her, the Weaſell onely is found to match her; witneſſed not onely by **Plinie*, but by others alſo, who beſides this Weaſell know not of any other beaſt in the world, which is able to ſtand in contention againſt the Cockatrice. But note that Rue is hatefull to a Serpent, and good againſt poyſon; the Weaſell therefore uſeth to eat of this herb both before and after the battell; ſo well hath Nature taught her to find a preſervative againſt her venimous and hurtfull adverſarie: and on the contrarie, ſo well is Nature pleaſed, that no beaſt ſhould be without his match. In a word, ſeeing the Weaſell (as I ſaid before) will deſtroy mice as well as hurt pullen, it ſerveth as an embleme to demonſtrate, that one ſometime may make uſe of an enemie; and though every thing be not good for one thing, yet it doth not follow that it is therefore good for nothing. But I leave the Weaſell, and come to the Mole.

*Lib. 8. cap. 21.

An embleme from the Weaſell, concerning the uſe of an enemie.

The

The Mole.

The *Mole* is a creature well known; the snout of it is like to the nose of a Shrew-mouse; and as for eyes or sight, she wanteth either: onely the * place where the eyes should stand have a little black spot like a millet or poppie seed. In Latine she is therefore called *Talpa* from the Greek word τυφλὸς, *blind*. And yet (* saith one) by dissection of a Mole great with young, it hath been proved that the young ones before birth have eyes, but after birth living continually in the dark earth without light, these their seeming eyes cease to grow to any perfection.

*Plin. lib. 11. c. 37.

*Topsell.

And some again have also witnessed, that although the Mole be blind all her life time, yet she * beginneth to open her eyes in dying: which * I find thus applied, and it is a prettie embleme. This serveth to decipher the state of a worldly man, who neither seeth heaven, nor thinketh of hell, in his life time, untill he be dying: and then beginning to feel that which before he either not believed, or not regarded, he looketh up and seeth. For *in morte, velit nolit*, saith * *Geminianus*, even against his will he is then compelled to open his eyes, and acknowledge his sinnes, although before he could not see them. It was the case of *Dives* to live and die in this black mistie blindnesse, for he had no grace to look up till he was in torments, and then (alas) it was too late. Yet herein was that saying of *Gregory* plainly verified; *Oculos, quos culpa claudit, pœna aperit.*

*Gemin. ex Arist.

*Id. in lib. 5. c. 29. and Dr. Will. on Levit. cap. 11.

An embleme from the Mole. A sinner, though blind in life, sees in death.

*Ibid. cap. 29.

The Ermin.

The *Martins* and *Ermins* be small beasts, as little, or lesse then a Squirill; the furre of whose skins is precious and of great esteem, worn onely by kings and noble personages: & although these beasts be not bred in England, yet there be plentie of them in many places beyond the seas: * they are said to have a sweet smell in their dung or excrement, like the Musk-cat; which proceedeth rather from the nature of the beast then from the meat

*Meaning the Martins.

which ſhe eateth: and for an eaſe to gouty legs, it is good to apply theſe Martins skinnes.

The Sivet-cat. The *Zibet* or *Sivet-cat*, is a beaſt bigger then any Cat, and leſſer then a Badger, having a ſharp face like a Martin; a ſhort, round, blunt, eare, black without, but pale within; the eye of a blew skie-colour, the foot and leg black, and more broad or open then a Cats: It hath black claws, a black noſe, and is ſpotted all over the body, but on the noſe, with certain other marks notably deſcribed by *Geſner* and *Topſell* in their book of beaſts.

This is a beaſt given much to cleanlineſſe, and from this beaſt proceedeth that precious drug which we call *Sivet*. It is an excrement not growing in the cod or ſecret part onely, but in a peculiar receptacle by it ſelf, increaſing every day to the weight of a groat: and who they be which keep of theſe Cats tame or incloſed, muſt remember to take away this diſtilled liquour every ſecond or third day, or elſe the beaſt doth rub it forth of his own accord.

The Musk-cat. That creature which men call a *Muſ-cat* or *Musk-cat*, doth much reſemble a Roe, both in greatneſſe, faſhion and hair, excepting that it hath thicker and grayer hairs: the feet alſo are hooved, and in the province of *Cathay* theſe Cats are found. This beaſt is that from whence the Musk proceedeth, which groweth in the navell or in a little bag near unto it; and of it ſelf it comes to be ripe, whereupon the beaſt itcheth, and is pained: he therefore rubbeth himſelf upon ſtones rocks, and trees till he break the bag: then the liquour runneth forth, and the wound cloſeth: but ſoon after, the bag comes to be full again.

The Cat. The common or vulgar *Cat* is a creature well known, and being young it is very wanton, and ſportfull; but waxing older, very ſad and melancholy. It is called a *Cat*,

Cat, from the Latine word *Cautus* ſignifying *wary*; for a Cat is a watchfull and warie beaſt, ſeldome overtaken, and moſt attendant to her ſport and prey: ſhe is alſo very cleanly and neat, oftentimes licking her own bodie to keep it ſmooth and fair, which ſhe can do in every part but her head; ſhe uſeth therefore to waſh her face with her feet, which ſhe licketh and moiſteneth with her tongue: and it is obſerved by ſome, that if ſhe put her feet beyond the crown of her head in this kind of waſhing, it is a ſigne of rain.

Why the male Cat eateth his young.

And again, it is ordinary to be known, that the male Cat will eat up the young kitlings if he can find where they are: the reaſon of which is becauſe he is deſirous of copulation, and during the time that the females give ſuck they cannot be drawn unto it.

Where in Cats be dangerous.

Moreover, it hath been uſuall for many men to play and ſport with theſe creatures; in which regard, *Topſell* very fitly calleth a Cat, *the idle mans paſtime*: affirming further that many have payed dearely for their unadviſed ſporting. Whereupon he tells a ſtorie of a certain companie of Monks much given to nouriſh and play with Cats, whereby they were ſo infected, that within a ſhort ſpace none of them were able either to ſay, reade, pray, or ſing in all the monaſterie: the reaſon of which is, becauſe the ſavour and breath of Cats deſtroy the lungs, and conſume the radicall humour. Wherefore it is a meanes to bring any into a conſumption, who ſhall ſuffer theſe creatures to lie with them upon their beds, for their breath (eſpecially in a cloſe chamber) infecteth the aire: therefore they be alſo dangerous in time of peſtilence, and apt to bring home venimous infection; in which regard it is very expedient to kill them in ſuch perilous times, as they uſe to do in cities and great towns.

A ſtorie ſhewing the danger of making Cats too familiar.

And

And note that above all things the Cat abhorreth wet or water; from whence aroſe that proverb,

Catus vult piſcem, ſed non vult tangere lympham.
Fain would the Cat ſome fiſhes eat,
But loath to wet her foot ſo neat.

In which ſhe is a fit emblem of thoſe, who will ſhrink to encounter with that pain which harbours and bringeth forth their wiſhed gain. For be it ſo that we deſire the ſweetneſſe of the well reliſht kernell, then muſt we likewiſe crack the hard ſhell; for *Difficilia quæ pulchra, Excellent things are hard to come by.*

Lib. 18. *Olaus Magnus* makes mention of an abundance of wild Cats in *Scandivania*, and where he ſpeaketh of the Lynxes, he ſheweth that they devoure many of theſe Cats: affirming moreover that the skinnes of theſe creatures are good againſt the ſharp cold of winter; whereupon thoſe of *Scythia* and *Moſcovia* uſe them for garments.

The Mouſe. The *Mouſe* is a creature commonly of a dunne colour; howbeit in differing places they have differing colours: for in ſome countreys they be not dunne or aſh-coloured, but blackiſh; in ſome again they be white, in ſome yellow, and in other ſome brown. In Greek he is called μῦς, & in Latine *Mus* from μύζειν, *mutire*, of the piping noiſe which he maketh. *Some ſay that mice increaſe and decreaſe in the quantitie of their bodies, according to the courſe of the moon, being ever leaſt when the light of that horned lamp is furtheſt from the full. The like alſo I find recorded of Cats eyes; for (as Mr *Topſell* writeth) the Egyptians obſerved in the eyes of a Cat, the increaſe of the moon-light: and in the male, his eyes do alſo varie with the ſunne; for when the ſunne ariſeth, the apple of his eye is long; towards noon it is round: and at the evening it cannot be ſeen at all, but the whole eye ſheweth alike.

*Gemin. lib. 5. cap. 6.

Ælianus

* *Ælianus* writeth that Mice excell all living creatures in the knowledge and experience of things to come; for when any old houſe, habitation, tenement, or other dwelling place waxeth ruinous and ready to fall, they perceive it firſt; and out of that their foreſight, they make preſent avoidance from their holes, and betake themſelves to flight even as faſt as their little legs will give them leave, and ſo they ſeek ſome other place wherein they may dwell with more ſecuritie. * *Var. hiſt. lib. 1.*

I remember a ſtorie of a man eaten up with Mice; by which we are taught that no humane device can withſtand Gods judgements. There was (ſaith *Munſter*) a certain Biſhop of *Magunce* named *Hatto*, who formerly had been the Abbot of *Fulden*, and in his time there was great famine in that countrey: this Biſhop, when he perceived the poore to faint, and to be oppreſſed with hunger, gathered together a great number of them into a large barn, and ſetting it on fire he burnt them up; ſaying, that they little differed from Mice, and were profitable for nothing, for they did but conſume and waſte the corn. Which damned trick and deviliſh tyrannie, the great God of heaven would not ſuffer to go away unrevenged, for he commanded the Mice by great flocks to invade this Biſhop and ſet upon him without pitie, vexing him both night and day with purpoſe to devoure him. Whereupon he fleeth for refuge into a certain tower compaſſed by the water of *Rhene*, thinking himſelf to be then ſafe, and free from their greedy gnawings and cruell bitings; but he was much deceived: for the Mice followed him, and like ſpeedy executioners to perform the juſt judgement of God, came ſwimming over and at the laſt gnawed ſuch holes into his bodie that they let in death, who ſuddenly ſendeth out his ſoul to give an account for this foul deed. Which accident was done in the yeare of our Lord 914, and the tower ever

A ſtorie of a Biſhop eaten up with Mice.

ever ſince called *the tower of Mice. Munſter Coſmog.*

Moreover, amongſt other things which the Mouſe taketh great delight to eat, he uſeth to watch for the gaping oiſter, and ſeeing it open, he thruſts in his head; which when the oiſter feeleth, ſhe preſently cloſeth her ſhell again, and ſo cruſheth the Mouſes head in pieces. Whereupon one made this embleme, *Captivus ob gulam*; whereby he deciphereth the condition of thoſe men who deſtroy themſelves to ſerve their bellies. Or (as another ſpeaketh) ſuch are here ſignified which are altogether given to their bellie, and to carnall pleaſure; for ſatisfaction whereof, *multa pericula ſuſtinent*, they undergo many dangers, and pay dearly for their follie.

An embleme from the Mouſe, concerning thoſe who deſtroy themſelves to ſerve their bellies.

The Shrew-mouſe.

The *Shrew-mouſe* is called by the Hollanders, *Molmuſſe*, becauſe it reſembleth a mole. For it hath a long and ſharp ſnout like a mole, teeth very ſmall, but ſo as they ſtand double in their mouth, for they have foure rowes, two beneath, and two above; and as for the tail, it is both ſlender and ſhort. In Latine it is called *Mus araneus*, becauſe it containeth in it poiſon, or venime like a ſpider; and if at any time it bite either man or beaſt, the truth of this will be too apparent. But commonly it is called a *Shrew-mouſe*; and from the venimous biting of this beaſt, we have an Engliſh imprecation, *I beſhrew thee*: in which words we do indeed wiſh ſome ſuch evil as the biting of this mouſe. And again, becauſe a curſt ſcold or brawling wife is eſteemed none of the leaſt evils, we therefore call ſuch a one a *Shrew*.

The Dormouſe.

The *Dormouſe* is a beaſt which endeth his old age every winter, and when ſummer cometh, reviveth again: which * ſome have therefore made an embleme of the reſurrection. They are exceeding ſleepie, and fatted with it. Their hair is ſhort, and in colour variable, onely their bellie is alwayes white: and for mine own part, I ever thought them to be no bigger then an ordinary mouſe,

* Epiphan.

but

but in *Geſner* and *Topſell* they are ſaid to be greater in quantitie then a ſquirrell.

The Alpine Mouſe.

The *Alpine Mouſe*, or *Mouſe of the Alps*, is of near akin to the dormouſe: it is almoſt as big as a conie, and not much unlike it, ſaving that their eares be ſhorter, and their tails longer. *Munſter* doth thus expreſſe their natures, ſaying; they be much given to ſleep, and when they are waking, they be either playing and skipping to and fro, or elſe doing ſomething; as gnawing with their teeth, ſcraping with their nails, or elſe carrying in their mouthes either ſtraw, rags, or ſoft hay, or any ſuch thing that may be good for their neſts. When they live thus wild upon great hills and mountains, and are minded to go and ſeek their prey or food, one of them ſtandeth in an high place to give notice to the reſt when any enemie or danger approcheth; which when he perceiveth, he barketh, and then all the other catch as much hay as they can, and ſo come running away.

But this is ſtrange; * Sometimes one and ſometimes another lieth down upon his back, and as much ſoft hay as may be laid upon his breaſt and bellie, he claſpeth and keepeth faſt with his feet, and then another of his fellows getteth him by the tail, and ſo with his prey draweth him home. About autumne they begin to hide themſelves in their neſts, the which they make ſo cloſe that no aire or water can hurt them: then do they lie hidden and ſleep all the whole winter, yea ſix or ſeven moneths without any meat, rolling themſelves round like unto a Hedge-hog. Now the inhabitants do oftentimes obſerve and mark the place of their neſts, and then digging away the earth untill they come at them, they find them ſo oppreſſed with deep ſleep that they carrie them and their neſts to their houſes, where they may keep them ſleeping untill the ſummer, if they do not heat them at the fire, or the warm ſunne.

* Munſt. Coſm.

The

The Rat.

The *Rat* is foure times so big as the common Mouse, being of a blakish duskie colour, and is thought to belong to the kind of Mice: Howbeit you shall sometimes see a Rat exceeding the common stature, and this the Germanes call * *The King of Rats*, because of his larger and greater body; adding moreover that the lesser bring him meat, and he lieth idle: and yet this (perhaps) may be in respect of his old age, not being able to hunt for himself.

* Topfell.

Dogs.

There be of *Dogs* divers kinds, neither is their any region in the world where these are not bred. And of these kinds some are for hunting, some for fighting and defence, some for the Boar, Bull or Bear, some for the Hare, Cony, or Hedge-hog, and some for one thing, some for another. They bring forth their young ones blind, which is in regard that they scratch their dams when they stirre in their bellies, which makes her therefore bring them to their birth before they be come to their eyes or sight, as is in many other creatures beside: and from hence arose the proverb, *Canis festinans cæcos parit catulos. The hastening bitch brings forth blind whelps.* Which is a fit embleme against all rashnesse and overhastie speed in any action: for haste makes waste, and sudden projects are seldome ripe.

An embleme from Dogs, being a caveat against too great haste in any action.

The Grey-hound.

But of all Dogs the *Grey-hound* may take the first place; he exceedeth in swiftnesse, and is preserved for the chase. This is the Grecian Dog, called therefore a *Grey-hound.*

The Hound.

The *Hound* is of a duller temper, whose onely glory is in his smell: and of Hounds there be sundry sorts, but the least is the *Beagle.*

The Spaniel.

In the next rank we may place the *Spaniel*, whereof there is one for the land, and another for the water; and as the Hounds were for beasts, so these are for birds.

The Mastive.

Then there is the *Mastive*, whose virtue is onely in his courage, strength, sharpnesse of teeth, and aptnesse

to

to encounter with any fierce wild beaſt; againſt which they are ſo cunning, that but ſeldome or never do they part any other then victours; and how fiercely they will fight with their own kind, is apparent: nay ſometimes they have fought in defence of their maſters, and either kept them ſafe from hams, or detected the murderers, or elſe in ſome other kind ſhewed their love; as a little after I purpoſe to declare.

And theſe (perhaps) at the firſt were the chief kinds (unleſſe the *Tumbler* and *Lurcher* ought to be reckoned by themſelves:) for concerning *Mongrels*, they came by commixtion of kind; which is thought to be firſt invented by hunters, for the amendment of ſome naturall defect which they might find in thoſe of a ſingle kind. And then again, theſe Mongrels mixing like wiſe diverſly, have produced thoſe ſeverall ſeeming kinds which now are.

And as for your mimick Dogs, it is ſuppoſed that they came firſt from a commixtion of Dogs with Apes, or Apes with Bitches. Other Curres have had either Wolves, Foxes, or ſome ſuch like creatures to be their Sires; as many think.

*Lyſimachus had a Dog which waited on him both in the warres and elſewhere: at the laſt dying and being brought to be burned (according to the cuſtome of the countrey) the poore Dog leaped into the flames, and was burned with him. And when *Titus Sabinus*, with his family was put to death at Rome, one of their Dogs would never be driven from his maſter, and being offered meat, he took it up and carried it to the mouth of his dead maſter, endeavouring to have him eat; and when the dead carcaſe was caſt into the river *Tyber*, the Dog ſwam after, labouring by all means poſſible to lift his maſter out of the waters. Neither is it other then a credible

*Bark. in his *Summ. Bonum.* A ſtory of a loving Dog.

Another ſtorie.

dible report out of *Plutarch*, that as King *Pyrrhus* marched with his armie, he happened to paſſe by a Dog which guarded the body of his maſter, who lay dead upon the high-way; which when the King had beheld a while as a pitifull ſpectacle, he was advertiſed that this was the third day of the poore Dogs faſting and watching there. Whereupon the King commanded the body to be buried, and the Dog for his fidelitie and love to be kept and cheriſhed. Not long after the King happened to make a muſter of his army, to ſee how well they were furniſhed; and the Dog being by, remained ſad and mute, untill at the laſt he eſpied the parties who murdered his late maſter, and then he flyeth upon them with ſuch a wonderfull force and fury that they had like to have been torn in pieces by him, turning himſelf now this way, and then that way, earneſtly beholding the King as if he deſired juſtice, howling moſt pitifully; whereupon the King cauſed the ſaid men to be committed, examined, and racked: and then not able to conceal it any longer, they confeſſe the fact, and are put to death. The like alſo was once known to happen in France: for one gentleman having killed another, the murder was diſcovered by the Dog of the ſlain man, in like manner as before; onely the circumſtances did a little differ: for the Dog and the ſuſpected perſon were put both together in a ſingle combate for clearing of the matter; and when the murderer could not defend himſelf from the fury of the detecting Dog, he confeſſed the whole matter: in memory whereof the manner of the fight was painted forth, and kept to be ſeen many years after.

Another ſtorie.

Apes.

Of *Apes* there be ſundry kinds, and many of them in ſomething or other do reſemble either men or women; as the common *Ape*, the * *Satyre*, the *Norvegian* monſters, the *Praſian Apes* which are bred in India, the *Bearded Ape* living in Ethiopia and India likewiſe, the *Cepus*

* Breeding in iſlands on the further ſide of Ganges, and in the Eaſtern mountains of India.

or *Martin Munkey*; all which either in their ſhape or countenance come near to men: as alſo the *Sphinx*, which hath an head, face, and breaſts like to a woman. Beſides which there is the common Munkey, the *Baboon*, the *Tartarine*, not much differing from a Baboon; and the *Satyrine* monſter, bearing the ſhape of a terrible beaſt, and fit onely to be joyned to the ſtory of *Satyres*. Then again there is the *Simivulpa* or *Apiſh-Fox*; and in America a very deformed creature which may be fitly called the *Bear-Ape*; and another which is called the *Sagoin*. Unto which (as not impertinent) may be alſo added the *Lamia*, which is a beaſt living in Lybia, with paps, a face, head, and hair like a woman, though in every other part like a terrible beaſt, full of ſcales, and a devourer of ſuch paſſengers (as at unawares) ſhall happen to come near her. And as for the Fayrie tales of the *Lamiæ*, they nothing belong to this creature: neither be thoſe common reports of *Sphinx* his * riddle, any other then fables. Howbeit there is a true ſtorie of one, whoſe name was *Sphinx*, ſlain by *Oedipus*; which he could not do till he had ſcaled that ſtrong fort which ſhe had firmly builded for her own defence; and unto all but *Oedipus*, it proved as a thing impregnable. As for *anigma*, what it was, the margent ſheweth.

But to proceed and leave this digreſſion, the common Apes muſt be again remembred. They be very nimble and active creatures; and for their greateſt delight, it is to imitate man in his actions.

About the mountains called *Emodii*, which be certain hills in India, there is (ſaith *Munſter*) a large wood full of great Apes, which when *Alexander* and his ſouldiers ſaw ſtanding afar off, they ſuppoſed them to be enemies, and therefore were purpoſed to fight and ſet upon them: but ſome natives of that countrey being preſent, ſhewed to *Alexander* that it was nothing but an aſſembly of Apes,

* *Ænigma* in the Thebanlanguage ſignifieth an inrode or warlike incurſion; wherefore the people complained in this ſort: This Grecian Sphinx robbeth us in ſetting upon us with an *Ænigma* but no man knoweth after what manner ſhe maketh this *anigma*. *Topſ.* hiſtory of beaſts, pag. 18. Alexander deceived by Apes.

whose contention was to imitate such things as they had seen; whereupon the King turns his battell into laughing, and his fighting into merrie disport and pastime.

How to catch wild Apes.

Moreover, I have sometimes read how these Apes are taken. The hunters intending to catch them, use to come and set full dishes of water within sight of the Apes; and then they begin to wash their eyes and face: which done, the water is suddenly taken and conveyed away, and in the stead thereof, pots full of birdlime or such like stuffe, are set in their places. Then the hunters depart a little from them; and the Apes, observing how they before had washed their face and eyes, come now presently down from the trees, and thinking to do as the men did, they daub and anoint their eyes and mouthes with birdlime, so and in such a manner, that neither knowing or fearing any thing, they are suddenly made a prey, and taken alive.

And again, there is also another device mentioned by * *Plinie,* and this it is. They who use to catch Apes, take unto themselves buskins, and put them on in the sight of the Apes, and so depart; leaving behind them other buskins inwardly besmeared with some such stuffe as was mentioned before, with which they mix some hairs that the deceit may not appear: then do the Apes take them up, and plucking them upon their legs and thighes, they are so besnared and entangled, that thinking to runne away they are deceived. *Ælianus* also writeth that when the Lions be sick, they catch and eat Apes, not for hunger, but for physick.

* *Plin. lib. 8. cap. 34.*

An embleme from the Ape and her young.

And for the Ape, this also is her practice: when she hath two young ones to be nourished at once, that which she loveth * best shall be alwayes held and hugged in her arms; but the other being lesse regarded, is more roughly used, and glad to sit upon the back of his damme, open to all dangers, little or nothing respected: and yet it so happeneth,

* *Filium quem magis diligit, in brachiis portat, alium verò in humeris gestat. Gemin. lib 5. cap. 10.*

happeneth, that the neglected one commonly fareth beſt. For whileſt the other is hugged too hard, his damme killeth him with kindneſſe; but this rejected one liveth, although he wanteth the taſte of fooliſh cockering. So have I ſometimes ſeen it amongſt the fond ſort of partiall parents, that with too much love they often hurt ſome of their children, whileſt the other left unto their hardeſt ſhifts, thrive and proſper in a harmleſſe courſe. *Non amo nimium diligentes*, is therefore worth obſerving; becauſe *omne nimium* is turned into *vitium*; & the readieſt way to be ſooneſt hurt, is to be foſtred up in the fondeſt manner. For as he that flatters an uſurer, claws the devil; ſo he that ſpareth the rod, ſpoils the child.

Againſt the fondneſſe of parents.

Geminianus mentions the like cuſtome of the fooliſh Ape but he applieth the embleme otherwiſe, directing it as an example to decipher out the follie of a covetous man, who bears up and down in the arms of his affection, that fondling which he loveth, namely the world; but leaves and neglects other things wherein his love ſhould ſhew it ſelf, caſting them upon his back and as it were behind him, although afterwards it be his hap to ſuffer for it. For when any neceſſitie ſhall urge the Ape to runne, ſhe caſteth down the young one in her arms; but the other behind her, ſitteth ſtill and hinders her courſe; ſo that being oppreſſed ſhe is taken. In like manner when he, whoſe onely love and joy was in the world, is compelled by death to flie away, he letteth go that which was his beſt beloved, and thinking to eſcape the eager purſuit of his fierce tormentours, he is deceived, becauſe the neglect of things to be regarded, lieth heavie on him, and they help now to make him wretched. It is better therefore to be poore then wicked; for it is not thy povertie, but thy ſinnes, which ſhut thee out from God: and (fond fool) do not they take pains without gains, labour in vain, and traffick ill, who loſe their

The follie of a covetous man.

In them who are bleſſed, the dew of heaven is before the fatneſſe of the earth.

ſouls to fill their bagges? For (as Iſaac ſhewed in bleſſing him who was to be bleſt) the dew of heaven muſt go before the fragrant fatneſſe of the fertil earth; but in him who loſt the bleſſing, the earths fatneſſe goes before, and takes place of the dew of heaven.

The Bear.

But do you not ſee the pawing Bear? he is a creature well known, and ſuch a one as is found in divers places of the world. * *Plinie* deſcribeth this beaſt at large, not onely ſhewing the time and manner of their birth, but alſo of their retreating to their caves, long time of faſting, and of ſleeping there. They bring forth young within the ſpace of thirtie dayes after their time of copulation, which at the firſt be ſhapeleſſe and void of form, without eyes, without hair, their nails onely appearing and hanging out, each whelp being little bigger then a mouſe; and theſe, by licking, are moulded into faſhion, and day by day brought to perfection.

* *Lib.* 3. *cap.* 36.

This beaſt can faſt many dayes, and by ſucking his foremoſt feet, aſſwage or ſomewhat mitigate his hunger. Some ſay that they can be without meat 40 dayes, and then when they come abroad they are filled beyond meaſure; which voracitie, and want of moderation, they help again by vomiting, and are provoked unto it by eating of ants. But above all other things, they love to feed on hony: whereupon they will fearleſly diſturb the bees, and ſearch into hollow trees for ſuch repaſt; not altogether to fill their bellies, but moſt of all to help a dimneſſe in their dull eyes. Moſcovia hath many ſuch breeding bees: and *Munſter* tells a ſtorie how a Bear ſeeking for hony, was the cauſe of delivering a man out of an hollow tree. There was (ſaith he) a poore countrey-man who uſed to ſearch the woods and trees for the gain and profit of hony, and eſpying at the length a very great hollow tree, he climbed up into the top of it, and leaped down into the trunk or bodie, ſinking and ſticking

A ſtorie of a man ſaved by a Bear.

ing faſt in a great heap of hony even to the breaſt & almoſt to the throat: and having continued two dayes in this ſweet priſon, during which time he fed himſelf with hony, all hope of deliverance was quite gone; for it was impoſſible he ſhould climbe up and get out, neither could his voice be heard although he cried with an open mouth, eſpecially in ſuch a ſolitude and vaſt place of wood and trees: ſo that now being deſtitute of all help and conſolation, he began utterly to deſpair; and yet by a marvellous, ſtrange, and (as it were) an incredible chance, he eſcaped: for it ſo fell out that he was delivered and drawn forth by the help and benefit of a great Bear, which ſeeking for hony, chanced to happen upon this tree: the Bear ſcaleth it, and letteth her ſelf down into the hollowneſſe thereof, with her back-parts firſt, in manner and faſhion of man when he climbeth. Now the man in the tree perceiving this, in a great fear and affrightment, he claſpeth faſt about the reins and loins of the Bear, who being thereupon terrified as much as the man, is forced to climbe up again, and violently to quit herſelf from the tree (the man in the mean time uſing great noiſes and many outcries) and ſo by this accident, a wiſhed, but hopeleſſe libertie was procured: for the Bear being feared, drew up the man and knew not of it.

And note that in Bears their head is very weak, being contrary to the Lion, whoſe head is alwayes ſtrong. And therefore when neceſſity urgeth that the Bear muſt needs tumble down from ſome high rock, ſhe tumbleth and rolleth with her head covered between her claws, and oftentimes by duſts and knocks, in gravell and ſand, they are almoſt exanimate and without life.

Neither is it ſeldome that their tender heads catch deadly wounds, although they cannot quickly feel them, by reaſon of their ardent love to hony. For (as * *Olaus Magnus* mentioneth) in Ruſſia and the neighbour countreys

* North. hiſt. lib. 18.

countreys they uſe to catch Bears with a certain engine like the head of a great nail beſet round with ſharp iron pegs, which they hang upon a bough juſt before that hole where the Bear fetcheth his hony, who coming according to his wonted cuſtome, ſtrives to thruſt it away with his head, but the more he puts it from him, the ſtronger it cometh back upon him; howbeit he being greedy of the hony in the tree, ceaſeth not to puſh againſt the engine, untill at laſt his many knocks cauſe him faintingly to fall. So have I ſeen many periſh through their own vain and fond delights: for as the ſweetneſſe of hony cauſeth the death of the Bear; ſo the delight in ſinne cauſeth the death of the ſoul. * *Geminianus* applies it thus; ſaying, that as the hony-ſeeking Bear deſtroyes her ſelf by her own folly, in beating back the piercing hammer; ſo man, who ſeeketh after the pleaſures and delights of ſinne, wounds himſelf by puſhing againſt the pricks: for the word of God, as a * hammer breaking the rocks, reſiſteth both him and his ſin: which whileſt he * caſteth from him, it doth more ſtrongly impinge upon him, and will at the laſt * day judge him to perdition.

An embleme concerning the end of ſins ſweetneſſe.

*Gemin. lib. 5. c. 35.

*Jer. 23. 29.

*Pſal. 50. 17.

*Rom. 2. 16.

The Bugill. The *Bugill* is of the ſame kind with Kine and Oxen, and ſo is that other beaſt which we call a *Byſon.*

Wild Bulls. The *Byſon* is a kind of wild Bull, never tamed, and bred moſt commonly in the North parts of the world. He is alſo called *Taurus Pæonicus, The Pæonian Bull:* of which there be two kinds, the greater and the leſſe. Neither do I think theſe to be any other then thoſe wild Bulls of Pruſſia mentioned by *Munſter*, in his book of Coſmography, ſaying, *There be wild Bulls in the woods of Pruſſia like unto the common ſort of Bulls, excepting that they have ſhorter horns, and a long beard under the chinne. They be cruell, and ſpare neither man nor beaſt; and when any ſnares or deceit is prepared and ſet to take them,*

them, or if they be wounded with arrows or the like, they labour moſt vehemently to revenge their wounds upon him that gave them; which if they cannot do, then through madneſſe, by ruſhing and ſtumbling on trees, they kill themſelves.

Some hurt themſelves becauſe they cannot hurt others.

A frantick beaſt, which, when he taketh harm
And cannot give, dies whil'ſt revenge is warm.
Such ſavage beaſts there be in humane ſhape,
Whoſe moodie madneſſe makes them deſperate;
And 'cauſe they cannot harm their hurting foe,
They harm themſelves, and ſhew their malice ſo.

The Elk.

The *Elk* cannot live but in a cold countrey, as in *Ruſſia, Pruſſia, Hungaria, Illyria, Swetia, Riga*, and ſuch like. *Olaus Magnus* hath written much of this beaſt, and ſo hath *Topſell* out of *Albertus*, *Geſner*, and others; and *Plinie* deſcribeth it to be a beaſt much like an Ox, excepting for his hair: but others call it *Equi-Cervus*, a *Horſe-hart*, becauſe it hath horns like an Hart, and is uſed in ſome countreys to draw men in coaches and chariots, through great ſnows and over ice. They be exceeding ſwift, and ſtrong, and will runne more miles in one day, then a horſe can in three, as *Topſell* mentions in his hiſtorie of foure-footed beaſts.

The Buffe.

The *Buffe* hath an head and horns like an Hart, the body like a Bull or Cow, as alſo the feet; and moſt commonly the colour of an Aſſe: Howbeit, being hunted he is ſaid to change his colour; which (as * ſome imagine) cometh to paſſe, like as in a man whoſe countenance changeth in time of fear. This is that beaſt of whoſe skinne men make them Buffe-leather jackets; and in Scythia it ſerveth to make breaſt-plates, of ſtrength, able to defend from the ſly force of a fierce dart.

* Topſell.

Of Deere.

Of *Deere* there be more kinds then one. Amongſt thoſe which be termed *Fallow-deere*, there is the Buck

and the Doe; the one being the male, the other the female. And concerning the *Red Deere*, there is the Hart and Hind; the Hart being the he, and the Hind the ſhe.

Then again there is another ſort bearing the names of *Roes*; of vvhich the male is the Roe-buck, and the female the Doe.

Theſe creatures are ſaid to be their ovvn Phyſicians, and (as it vvere) not needing the help of man, can cure themſelves through a ſecret inſtinct of nature, and the providence of God their maker: for by feeding on that precious herb *Dictamnum*, or *Dittanie*, mentioned before in the third dayes vvork, they cure themſelves of their cruell vvounds, and ſo become vvhole again: and for other ills, they have other herbs. The males are horned, vvhich they caſt off onee every ſpring; and being diſarmed Pollards, they uſe to keep themſelves cloſe hidden, and go not forth to relief but by night; and as they grovv bigger and bigger they harden in the ſunne, they in the mean time making ſome proof of their ſtrength againſt hard trees: and when they perceive them to be tough and ſtrong enough, then they dare boldly go abroad, thinking themſelves vvell armed novv again.

Gemin. lib. 3. c. 42.

** Lib. 8. cap. 32.*

**Plinie* ſaith, they can endure to ſvvim thirty miles endvvayes: and vvhen they are to paſſe any great river, to go to Rut in ſome iſle or forreſt, they aſſemble themſelves together in herds; and knovving the ſtrongeſt and beſt ſvvimmer, they put him in the forefront, and then he vvhich cometh the ſecond, ſtayeth up his head upon the back of the firſt, and all the reſt in like manner even unto the laſt: but the foremoſt being vveary, the ſecond ever takes his place, and he goes back unto the hindmoſt.

The ſaid Authour alſo vvitneſſeth, that the right horn of an Hart is of a ſoveraigne and precious virtue: and as a thing

thing confeſſed of all, the Hart is knovvn to fill up the number of many years; as vvas proved by the Harts of *Alexander*, caught about an hundred years after his death, vvith rings and collars on them ſhevving no leſſe. Being hunted and ready to be taken by the hounds, they vvill for their laſt refuge fly to houſes and places of reſort, chooſing rather to yield unto man then dogs.

They go to Rut about the midſt of September, and at the end of eight moneths they bring forth young, ſometimes tvvo calves at once; and theſe they practiſe to a nimble uſing of their legs from the very beginning; leading them up to high rocks, and teaching them to leap, runne, and fly avvay as occaſion ſerveth. A fit embleme of carefull parents, who teach their children vvhileſt their years be green, inſtructing them betimes in the right vvay vvherein they ought to vvalk; according to that of Solomon, *Train up a child in the way he ſhould go: and when he is old he will not depart from it*, Prov. 22. 6.

An embleme from the Hart; ſhewing that children ſhould be taught betimes.

And again, in their flying to man vvhen the hounds oppreſſe them, they be fit emblemes of thoſe vvho fly to that God in the cloudie dayes of dark affliction, vvhom before they ſought not after: for ſaith the Lord, *In their affliction they will ſeek me early*. And is it not often ſeen, that *Miſery can open thoſe eyes which happineſſe hath cloſed, and abate that Tympanie which proſperitie hath ingendred?* Yes verily. For as the vvaters of the ſunne, vvhich *Curtius* mentions, are cold at noon vvhen the Aire is hotteſt, and hot at midnight vvhen the Aire is coldeſt; ſo is it vvith us: our zeal is coldeſt in the ſunneſhine of proſperitie, but gathers heat vvhen trouble cometh: And if trouble cannot do it, nothing can.

Another.

Our eyes are opened in afflictions.

Moreover,

Another emblem concerning those who sorrow to part with earth although they may gain heaven.

Moreover, this also is not impertinent. I have read of the Hart (saith one) that he weeps every yeare for the shedding of his head, though it be to make room for a better. So do I see the worldling go away sorrowfull at this very saying, *Go sell all that thou hast*, though it be for treasure in heaven: the reason of which is, because men do not look at what they are to have, but what they are to part with; and at any time will be for one bird in the hand, rather then five in the bush; yet slight it not, but mark it well; He that consults with his bodie for the saving of his soul, will never bring it to heaven: neither is it any harm to lose the worse for finding of the better, nor any thing in hand too dear for that happinesse which is yet to come. No matter therefore though we sow in teares, so we may reap in joy: for as the difference between time and eternitie is unspeakable; so it is also, betwixt heaven and earth.

**Gemin. lib.* 5. Another emblem.

Also, this I likewise find, that when the Hart is * taken by the hounds, or any other device of the hunters, he will then shed forth teares as well as when he casteth his head. So should a penitent and a watchfull sinner, who is carefull to avoid the wiles of the devil, he should not cease to weep when he seeth how he is overtaken; for there is one on high who marks his teares, and puts them up into his bottle; alwayes pleased to see a sorrowfull bespotted soul baptized in the pearled drops of repentant dew. But to proceed.

We should weep for sinne, by the example of the Hart.

Tragelaphus.

Tragelaphus is a kind of Deer-goat, of which *Gesner* maketh two sorts; the first whereof hath horns like a Deer; the second like a Goat, but more crooked and bending backward.

The Rangifer.

There is likewise another beast, most common in the Northern parts; *Olaus* calleth him the *Rangifer*: he also hath horns like a Deer, and on him men use to ride in stead of horses.

The

The common *Goats* are eaſily known; but the Syrian Goats are differing, having long flapping eares like a deep-mouthed hound: and of theſe there be two kinds, the greater and the leſſe. Then again there is another Goat called the *Rock-goat*, differing from the reſt: and as for the Kid, it is a young Goat, a ſucker, or one newly taken from their damme. *The Goat*

The *Badger* fighteth upon his back, and ſo maketh uſe both of his teeth and claws: the Fox makes no denne, but driveth away the Badger out of his, by piſſing in it. *The Badger.*

Sheep naturally be of a hot diſpoſition, weak, tender, harmleſſe, and ſo farre from greedineſſe, that they will live of leſſe food then any other beaſt of their bigneſſe. They be alſo pitifull amongſt themſelves; for when they perceive any one of their fellovvs to be ſick and fainting through heat, they vvill ſtand together and keep avvay the ſunne. The rammes and evves are fit for generation from tvvo years of age untill they be ten: neither do vve find any thing, either in them, or vvithout them, vvhich is not of ſome good uſe and profit. And note that the evves bear their young ones in their bodies an hundred and fiftie dayes, and no longer, according to the common account. I have heard of ſheep in ſome countreys vvhich have yellovv fleeces; but here vvith us, they be alwayes either black, white, or of a colour near to a ruſſet. It is ſtrange how in a great flock, every lambe ſhould knovv his ovvn damme: and prettie ſport is it, to ſee hovv they vvill play, and skip up and down. Hovvbeit the ſhepherds find much trouble in one propertie belonging to theſe dancing creatures; for if one lambe chance to skip into a river or ditch, the reſt (if they be by) vvill ſuddenly follovv and do the like. In vvhich they be emblemes of thoſe, vvho vvill rather ſtrive to do as the meſt then as the beſt: and yet goodneſſe goes not by multitude, for the moſt are commonly the vvorſt: neither *Sheep.*

An emblem from the Lambes, concerning thoſe who often periſh by following the ſteps of the greateſt multitude.

ther is a way alwayes to be choſen for the number or quantitie of companions, but for the qualitie; and better is it to go to heaven with ſtrangers, then to hell with our friends. *Dives* therefore would have ſent from the dead, to have it told his brethren. What? that the way to happineſſe is to follow goodneſſe, although it be but *grex puſillus*, a ſmall and little flock.

The Horſe.

Mares are ſaid to have their full increaſe in five years, but the *Horſe* not till ſix. And there be ſome who write that an Horſe ſhould not be broken or tamed untill two years of age: and firſt of all he is to be rubbed and chafed, and uſed with flattering and gentle words, his ſtable ſhould be laid with ſtone, and by little and little he muſt be uſed to go upon the ſtones that his feet might be hardened. At the beginning let not him who ſhall ſit or break him be too rough, nor wearie him with running, but prove and turn him gently on both ſides, and touch him rather with the ſtick then ſpurre.

They are ſaid not onely to have knowledge of their riders and keepers, but alſo of their generation and deſcent, knowing their ſires and dammes in ſuch wiſe, that (as* *Plinie* ſaith) they will refuſe to couple or engender with them: which how true it is, the breeders of Horſes be the beſt witneſſes. They be apt to learn, having a greater love to exerciſe then any other beaſt. Their courage and valour is infinite, and being once trained unto it, they take an exceeding delight in the warres, and will (as it were) prepare themſelves man-like for the ſame. Neither hath it been but ſometimes, and that not ſeldome known how they have * mourned for the loſſe or death of their maſters: and how apt they be to endure labour, there is none but knoweth.

* *Plin. lib. 8. cap. 24.*

The markes of a good Horſe.

But to know a good Horſe and his age, theſe be his marks. He ſhould be of one colour, excepting ſome mark or ſtarre to grace him; his mane ought to be thick and

and ſtanding up, his loins ſtrong, his head ſhort, his neck muſt be erect, his eares ſmall according to the proportion of his head, a broad breaſt, a mean bellie, ſhort hips, a large tail and ſomewhat curled, ſtraight legs, and equall knees, ſtedfaſt hooſs and groſſe, and yet not too big nor ſmall, and in his legs not ſo much fleſh as bone.

How to know the age of an Horſe.

As for his age, when he is two years old and an half, his middle teeth both above and beneath do fall; when he is three years old, he caſteth thoſe which be like unto dogs teeth and bringeth forth new; before ſix, his upper double teeth do fall, and at ſix he ſupplieth his want again; at ſeven likewiſe he hath all equall, and from thence (ſome ſay) his teeth begin to be hollow: at ten his temples are alſo hollow, his teeth ſtick out, and his brows ſometimes wax gray. But of this enough.

The Jerf.

A fit embleme againſt gluttonie and drunkenneſſe.

The *Gulon* or *Jerf* is a beaſt in the North parts of Suetia: *Olaus Magnus* hath largely deſcribed it in the eighteenth book of his Northern hiſtorie, affirming that it is the moſt inſatiable and devouring creature that is: for having killed his prey or found ſome carcaſe, he feedeth without giving over, untill his bellie be ſo full that it will hold no more, but ſtrouteth out and is puffed up like a bag pipe; then to eaſe himſelf, he thruſteth in between two narrow trees, and ſtraineth out backwards that which he hath eaten, and ſo being made emptie, returneth again and filleth himſelf as before, and then ſtraineth it out between the two trees, and returneth to the carcaſe to eat again; and thus he continueth untill he hath devoured all: which being conſumed, he hunteth after more, in this ſort continually paſſing his life. Which beaſt (as is worthily * obſerved) is a fit embleme of thoſe riotous and gluttonous men, who paſſe whole dayes and nights in eating and drinking; and when they have filled themſelves ſo full that their bodies will hold no more, they vomit up what they have taken,

By Sir Richard Bark. in his *Summ. bonum.*

taken, and then return to their carowſing cups and cheer again, as though this onely were their felicitie, and end for which the mighty God had made them. But let them know, that (although many live as if they came but into this world to make merry and away) ruine will follow riot: and it were well for ſuch men, as they have lived like beaſts, if they could likewiſe die like beaſts, never to live again: but (alas) they cannot; here is their miſery, that they onely leave their pleaſures behind them, and not their ſinnes. For when Eſau ſells his birthright for a meſſe of pottage, he may wiſh for a bleſſing and not find it, although he ſeek with tears; or when Balthaſar ſpends his time in damned quaffing, in ſtead of quenching his thirſt he may drown his ſoul: for unleſſe there were weight in vanitie, or ſubſtance in deceiving pleaſure, theſe men put into the balance are found too light. Wherefore, let not eating and drinking take away our ſtomachs to ſpirituall things, but let us eat to live, and live to praiſe the Lord.

The fleſh of this *Jerf* is nothing wholeſome for food, but their skinnes are precious, and uſed of great men to be worn in garments: and as for his name, the Natives call him *Jerf*; but in Latine he is *Gulo, videlicet à gulositate*, from his gluttonous feeding.

Another embleme, concerning thoſe who are ſuddenly taken away in the very act of their ſinnes.

And one thing more is yet obſervable. When the hunters come to catch him, they lay a freſh carcaſe in the place where he haunteth; that being filled, and as it were wedged in between his trees, they may ſet upon him and take him with eaſe. So is it often a wretched mans caſe, to periſh by means of that wherein he took delight; and ſuddenly to be taken away, even whileſt he follows his wonted courſe. But this is ſtrange: for are men ſtill ignorant, and yet to learn what this life is? It is a journey unto death, and every day doth make it ſhorter: and ſometimes the nearer it cometh, the further

we

we are from thinking of it. For ſecuritie is a great enemy to prevention; and upon thought that we ſhall not die yet, it comes to paſſe that we ſeldome prepare to die at all.

Make not therefore the laſt firſt, and firſt laſt; leſt by being caught in thy ſinnes, neither firſt nor laſt thou come at heaven.

The Gorgon.

The *Gorgon* or *Catoblepas* is for the moſt part bred in Lybia and Heſperia. It is a fearfull and terrible beaſt to look upon, it hath eye-lids thick and high, eyes not very great, but fiery, and as it were of a bloudie colour. He never uſeth to look directly forward, nor upward, but alwayes down to the earth: and from his crown to his noſe he hath a long hanging mane, by reaſon whereof his looks are fearfull. Moreover, his feet be cloven, and his body all over as if it were full of ſcales. As for his meat, it is deadly and poyſonfull herbs; and if at any time this ſtrange beaſt ſhall ſee a Bull or other creature whereof he is afraid, he preſently cauſeth his mane to ſtand upright, and gaping wide he ſendeth forth a horrible filthy breath, which infecteth and poyſoneth the aire over his head and about him, inſomuch that ſuch creatures as draw in the breath of that aire, are grievouſly afflicted, and loſing both voice and ſight, they fall into deadly convulſions. *Topſell.*

The Baſilisk.

Next unto which I may mention the *Cockatrice* or *Baſilisk*, and ſo come to ſerpents. Now this is the King of ſerpents; not for his magnitude or greatneſſe, but for his ſtately pace and magnanimous mind: for the head and half part of his body he alwayes carries upright, and hath a kind of creſt like a crown upon his head. This creature is in thickneſſe as big as a mans wriſt, and of length proportionable to that thickneſſe: his eyes are red in a kind of cloudy blackneſſe,

neſſe, as if fire were mixt with ſmoke. His poyſon is a very hot and venimous poyſon, drying up and ſcorching the graſſe as if it were burned, infecting the aire round about him, ſo as no other creature can live near him: in which he is like to the *Gorgon*, whom laſt of all I mentioned.

And amongſt all living creatures, there is none that periſheth ſooner by the poyſon of a Cockatrice, then man; for with his ſight he killeth him: which is, * becauſe the beams of the Cockatrices eyes do corrupt the viſible ſpirit of a man, as is affirmed; which being corrupted, all the other ſpirits of life coming from the heart and brain, are thereby corrupted alſo; and ſo the man dieth. His hiſſing likewiſe is ſaid to be as bad, in regard that it blaſteth trees, killeth birds, &c. by poyſoning of the aire. If any thing be ſlain by it, the ſame alſo proveth venimous to ſuch as touch it: onely a Weaſell kills it; as in the deſcription of that beaſt I have already ſhewed.

*Topſ. Hiſt. of ſerpents, pag. 125.

That they be bred out of an egge, laid by an old cock, is ſcarce credible: howbeit, * ſome affirm with great confidence, that when the cock waxeth old, and ceaſeth to tread his hens any longer, there groweth in him, of his corrupted ſeed, a little egge with a thinne filme in the ſtead of a ſhell, and this being hatched by the Toad, or ſome ſuch like creature, bringeth forth a venimous worm, although not this Baſilisk, that King of ſerpents. *Plinie* deſcribeth the Cockatrice not to be above twelve inches long, in which regard Mr *Topſell* thinketh this not to be the main and great Cockatrice, but rather that worm bred out of the former egge: wherein I wiſh every mans judgement to be his own.

*Idem ibid.

A note concerning nocuous creatures.

Yet though this be a nocuous creature, it much magnifieth the power of God, in being able to make ſuch a one by

by the power of his word: and as for us, both concerning this and all other hurtfull things, to us (I ſay) is ſhewen the miſerable condition which ſinne hath made us ſubjects to: for before they might have been Adams play-fellows, all at his beck, at his ſervice and command, none having power to hurt him, becauſe there was nothing in him then for harm to work upon. But to proceed.

The Boas.

The *Boas* is a ſerpent of an extraordinary bigneſſe; it can ſwallow down a little child whole without breaking any bone: for as *Topſell* writeth out of *Solinus*, in the dayes of *Claudius* the Emperour, there was ſuch a one taken at Rome with a child in his belly.

The Latines call it *Boa* and *Bova*, from *Bos*, becauſe it deſireth (and ſo do all Snakes and Adders) to ſuck the milk of Cows, inſomuch that he will never kill them untill their milk be dryed up: and then he will eat their fleſh, as before he had ſuckt their milk.

The Dragon.

The *Dragon* is the greateſt of all ſerpents, as ſome write; and hath ſharp teeth ſet like a ſaw, but his ſtrength reſteth in his tail rather then in his teeth; and therefore when he fights with the Elephant, he claſpeth cloſe about his legs: and ſometimes he killeth him, but moſt commonly both die together; the Elephant for want of bloud, and the Dragon through too great fill of bloud, or elſe by the weight of the Elephants body falling on him.

Mouſt. Epit. Coſ.

He is ſometimes in the * waters, and lieth often in his den; he ſleepeth ſeldome, but watcheth almoſt continually; he devoureth beaſts and fowls; and for his eye-ſight, it is very ſharp, ſo that in the mountains he ſeeth his prey afarre off. He is bred moſt commonly in India and Ethiopia, his greateſt poyſon

being in his tongue and gall: wherefore the Ethiopians cut away the tongue and eat the fleſh. *Munſt. Coſm.*

Plinie ſaith that through the ſtrength of poyſon in his tongue, it is alwaye lift up; and ſometimes through the heat of the ſaid poyſon lurking there, his breath is ſo hot as if he breathed fire, by which contagious blaſt he *ſometimes ſo tainteth the aire, that the peſtilence proceedeth thereof. His wings will carrie him to ſeek his prey, when and where occaſion ſerveth.

Munſt.

The Dipſas. The *Dipſas* is another kind of ſerpent, and thoſe whom he ſtingeth die with thirſt.

Hypnale. But thoſe whom the *Hypnale* ſtingeth, die with ſleep.

Preſter. Such as are ſtung by the *Preſter*, die with ſwelling.

Hæmorrhois. And the wounds of the *Hæmorrhois* procure unſtanchable bleeding.

The Dart. The *Dart* taketh name from his ſwift darting or leaping upon a man to wound and kill him. His uſe and cuſtome is to get up into trees and hedges, and ſuddenly to dart from thence.

The Amphiſbena. The *Amphiſbena* or *Double-head*, goeth both wayes, or moveth circularly with crooked windings, becauſe he hath two heads and no tail, having a head at both ends: which (ſaith *one) is a fit embleme of popular ſedition; for where the people will rule their Prince, needs muſt their motion be crooked; and where there be two heads, it is as if there were no head at all. Africa aboundeth with theſe, and ſundry the other ſerpents.

*Purch. An embleme concerning government.

Ceraſtes. *Ceraſtes* is a ſerpent bred alſo in Africa, having two horns on his head, in manner of a ſnail; and from thence it is that he taketh his name, being called by the Grecians κεράστης, that is to ſay, *horned*. He is about a cubit in length, and of a ſable colour. His biting for the moſt part is incurable: and with his horns he can faſhion out (as it were) a little coronet, whereby he * allureth the birds unto him, and then (lying hidden in the ſands, all

*Purch.

but

but the head) he cunningly devoureth them. *Solinus*, and ſome others ſay, he hath not onely two, but foure horns; as may be ſeen in *Plinie, lib.* 8. *cap.* 23.

The Viper.

The *Viper* hath a bodie long and ſlender, like an eele or ſnake; a broad head, red and flaming eyes: and as for his teeth, they be incloſed (as it were) in a little bladder, in which he carrieth his poyſon, from thence infuſing it into the wound which he hath bitten. * Some Authours write, that when the Vipers engender, the male putteth his head into the females mouth, which ſhe (being overcome with the pleaſure of copulation) biteth off; affirming moreover, that their young uſe to gnaw themſelves out of their dammes bellies, there being thereby an end both of male and female, the one in the time of conception, the other in the time of birth, and are therefore called *Vipers*, viz. *à vi pariendo*: but others alledge the teſtimonie of one *James Grevin*, who, in the 7 chapter of his 1 book of venimes, produceth the witneſſe of * *Ariſtotle*, ſaying that the Viper putteth forth her young ones, infolded in a membrane, which breaketh about the third day; and alſo that ſometimes thoſe which are within the bellie iſſue forth, having gnawn aſunder the foreſaid membrane.

*Plin lib. 10. cap. 62.

*Hiſt. anim lib. 5. cap. ult.

The Slow-worm.

The *Slow-worm* hath dark eyes and dull eares, and can heare or ſee but little. His skinne is thick, his colour is of a pale blew, intermixed on the ſides, with ſome few blackiſh ſpots: he ſeldome hurteth, unleſſe by chance he be provoked.

The Adder.

As for the *Snake*, *Adder*, and ſuch like, they be common amongſt us; and ſo is that other already mentioned; *viz.* the *Slow-worm*. Howbeit we find that the Adder is a craftie and a ſubtil creature, biting ſuddenly the paſſers by; whereupon Jacob ſaid that his ſonne Dan ſhould be *Coluber in via*, Gen. 49.

This, and other ſerpents, who change their coats

when they caſt off their skinnes, do firſt of all by faſting make their fleſh low and abated, and then by ſliding through a narrow paſſage, they ſlip them off. Which may be a fit embleme of thoſe, who when they go about to caſt off their old and former ſinnes, know that an humbling of themſelves before God, in abſtinence and faſting, is very good, and a great help to fit them for repentance: for it is certain, that if our bellie be our god, then *gula* doth not onely make way for *Galen*, and *Bacchus* for *Æſculapius*; but even for *Tophet* alſo. Whereupon we find, that *Dives* in hell was not upbraided onely becauſe he fared *deliciouſly*, but becauſe it was *every day*. And how hard a thing it is for a man to ſerve any other god then his bellie, who is continually uſed to ſtuff his paunch, the common practiſes of careleſſe livers make apparent; for whileſt they ſleep, and eat, and play, they never think of heaven, nor can be fitted to ſlip off their old ſinnes: but on the contrary, a retired humbleneſſe will make them both fearfull and carefull how they walk. Blame not Paul then if this be part of his boaſting, that he could out-faſt, or out-watch the reſt of the Apoſtles: for (ſaith S. *Hierom*) *Ardentes diaboli ſagittæ, jejuniorum & vigiliarum frigore reſtinguendæ ſunt.*

An embleme from the Adder caſting his skin, concerning the benefit of abſtinence and faſting, if it be rightly uſed.

African Snakes and Adders.

Mr *Purchas* writeth that they have Snakes and Adders in Africa, whereof ſome are called *Imbumas*, five and twentie ſpans long living in land and water, not venimous but ravenous, whoſe cuſtome is to lurk in trees, waiting there for their prey; and having taken it, they devour horns, hoofs, and all, although it be a Hart: and then ſwollen with this ſo huge a meal, they be as it were drunk and ſleepie, and altogether unweldie for the ſpace of five or ſix dayes. Moreover he affirmeth that the Pagan Negroes roſt and eat them as great dainties.

A great ſerpent.

**Aulus Gellius* ſheweth how *Attilius Regulus*, the Romane Conſul, in the firſt Punick warre, encountered with

**Lib. 6. cap. 3.*

with a huge ſerpent at the river *Bagrada*, being forced to plant his engines and artillerie againſt him; and killing him, his skinne was ſent to Rome for a monument, being no leſſe then 120 foot in length.

Dragons in Congo.

In the kingdome of *Congo* be certain great Dragons with wings, in bigneſſe like to rammes, having long tails, and in their chaps divers jawes of teeth, of blew and green colour; they have two feet, and feed on fleſh.

* *Purch.*

The Pagan Negroes * pray to them as gods, for which cauſe the great lords of the countrey keep them, that thereby they may make a gain of the peoples devotion when they offer their gifts and oblations.

The Scorpion.

The *Scorpion* is a venimous inſect, ſomewhat faſhioned like a crab, lobſter, or creyfiſh; they have many legs, and carrie their ſtings in their tails: ſometimes they eat their young ones and are of divers colours; the female is the biggeſt, and hath the ſharpeſt ſting. And note, that of the Scorpion is made an oyl which is good againſt the ſtinging of Scorpions: and ſo are love-ſick youngſters cured; for when nothing will help them, they may again be healed by enjoying her who gave the wound.

The Aſp.

The *Aſp* is ſomething like to a land-ſnake, but with a broader back; their eyes are red and flaming, and out of their foreheads grow two pieces of fleſh like an hard skinne: and for their poiſon, it is in a manner incurable. *Plinie* writeth that they go alwayes two and two together, and if one of them be ſlain, the other will follow eagerly, and ſeek up and down after him that ſlew his mate: but it is the * providence of God Almighty to give as many remedies againſt evil, as there be evils in the world. For the dulneſſe of this ſerpents ſight, and ſlowneſſe of her pace, doth keep her from many miſchiefs which otherwiſe would be done. The beſt way to cure their ſtings, is preſently to cut off the member bitten.

Plin. lib. 8. cap. 23.

* *Topſell.*

There be * they who make three ſorts of them; that is

* See the authour of *Du Bart.* Summarie.

to ſay, the *Terreſtriall* (five handfulls long) the *Hirundiner* (coloured like a Swallow, and is but a handfull long) and laſt of all the *Spitter*, greater then the other. Their biting cauſeth death within few houres: that of the *Hirundiner* is ſudden, of the *Spitter* ſomewhat ſlower, beginning firſt with a dimneſſe or trouble in the eyes, then with a ſwelling in the face, after that it proceedeth to a deafneſſe, and laſt of all it bringeth death.

Caius Rhodiginus. writeth that the Kings of Egypt did wear the pictures of Aſpes in their crowns, whereby they ſignified the invincible power of principalitie in this creature, whoſe wounds cannot eaſily be cured; making it thereby an embleme of the power and wrath of a King: and the prieſts of Egypt and thoſe of Ethiopia did likewiſe wear very long caps, having towards their top a thing like a navel, about which were the forms of winding Aſps; to ſignifie to the people, that thoſe who reſiſt God and the King, ſhall periſh by unreſiſtable violence. *Topſell.*

The Chameleon.

The *Chameleons* are admirable for their aierie ſubſtance, and for the changeableneſſe of their colours; or (if you will) for their aierie ſuſtenance, although they ſometimes hunt and eat flies. He is of the form and greatneſſe of a Lizzard, but hath higher legs: his ribs joyn in his bellie as in fiſhes, his muzzle is long, and his tail ſmall towards the end, and turning inwards; his skinne is rough, his eyes hollow, and his nails crooked: and when he moves himſelf, he crawleth ſlowly like a Tortoiſe. See *Plin.* in his 8 book, chap. 33.

His tongue is almoſt half a foot long, which he can dart forth as ſwiftly as an arrow ſhot from a bow; it hath a big knot on the tip thereof, and is as catching and holding as glue: which when he darteth forth, he can faſten

to

to the Graſſe-hoppers, Caterpillers, and Flies, thereby drawing them down into his throat.

Why the Chameleon changeth colour.

He changeth into all and every colour, excepting white and red; whereof there be divers opinions: ſome think that he changeth through fear; but this is not like, for though fear alter the colour, as we, when we are afraid, wax wan and pale, yet it will not change the bodie into every colour: others think that by reaſon of his tranſparencie he taketh colour from thoſe things which are near him, as the fiſh called *Polypus* taketh the ſimilitude of the rocks and ſtones, where he lieth to deceive the fiſh: and ſome again joyn both together, for the Chameleon being in fear, ſwelleth by drawing in the aire, and then his skin being thereby pent, is the ſmoother, and the apter to receive the impreſſion of the colours of things objected; agreeing in this to that of *Ariſtotle*, ſaying, that his colour is changed being puft up with wind. But be the cauſe from whence it will, it affordeth a fit embleme or lively repreſentation of flatterers, and time-ſervers, who fit themſelves for all companies, times, and occaſions, flattering any one, thereby to make fit uſe of every one.

An embleme againſt flatterie.

The Lizzard.

The *Lizzard* is a little creature much like the Evet, but without poyſon, breeding in Italy and in many other countreys: the dung of which beaſt cleareth the ſight and taketh away ſpots in the eye: the head thereof being bruiſed and applied, will draw out a thorn or any other thing ſticking in the fleſh.

The Salamander.

The *Salamander* is a ſmall venimous beaſt with foure feet, and a ſhort tail; it doth ſomewhat reſemble the ſhape of a Lizzard, according to *Plinie*, *lib.* 10. *cap.* 67. And as for his conſtitution, it is ſo cold, that (like ice) if he do but touch the fire, he puts it out. They be common in India, in the iſle of *Madagaſcar*; as Mr *Purchas* alledgeth, where he treateth of the creatures, Planets, and fruits of India.

The concluſion of the firſt Section.

But ſtay it is time to ſtop: I know not how to mention every thing; and yet there is nothing which is not worthy admiration. I made (I muſt confeſſe) as much haſte as I could, and yet methinks I ſee both theſe, and thouſands more, runne from me flocking all together, as if they meant to dance attendance now on Mans creation; and not onely ſhew to him their due obedience and humble welcome into the world, his ſtately palace, but alſo wait to have their names according to their natures. For *whatſoever Adam called every living creature, that was* (ſaith Moſes) *the name thereof.*

Gen. 2. 19.

Let us now then come to him, for whoſe ſake all things elſe were made: for God made the world for Man, and Man for himſelf. It was therefore a daintie fancie of *one, who brought in the World ſpeaking to Man after this manner. *Vide homo, dicit Mundus, quomodo amavit te, qui propter te fecit me. Servio tibi, quia factus ſum propter te, ut ſervias illi qui fecit & me & te; me propter te, & te propter ſe. See oh man* (ſaith the World) *how he hath loved thee, who made me for thee. I ſerve thee, becauſe I am made for thee, that thou maiſt ſerve him who made both me and thee; me for thee, and thee for himſelf.* This I will therefore adde,

* Hug. in didaſc. lib. 1.

Herbs cure our fleſh: for us the winds do blow,
The earth doth reſt, heav'n move, and fountains flow.
United waters round the world about
Ship us, new treaſures, kingdomes to find out.
The lower give us drink; the higher meat,
By dropping on the ground nigh parcht with heat.
Night curtains draws, the ſtarres have us to bed
When Phebus ſets, and day doth hide his head.
One world is Man, another doth attend him;
He treads on that which oftimes doth befriend him.
Grant therefore (Lord) that as the world ſerves me,
I may a ſervant to thy greatneſſe be.

Sect.

Sect. 2.

The creation of Man, being created male and female, and made according to the image of God: together with the inſtitution of Marriage, and bleſſing given to that eſtate.

THough Mankind were the laſt, yet not the leaſt. God onely ſpake his powerfull word, and then the other creatures were produced: but now he calls a councell, and doth conſult, not out of need, but rather to ſhew the excellencie of his work; or indeed, to ſhew himſelf: he ſpeaks not therefore to the Angels but the Trinitie, ſaying, *Let us make man.* Wherein the Father, as the firſt in order, ſpeaketh to the Sonne and holy Spirit: and the Sonne and Spirit, ſpeak and decree it with the Father: and the Father, Sonne, and holy Ghoſt, all Three in One, and One in Three, create a creature to be the other creatures lord. He was therefore the laſt, as the end of all the reſt; the laſt in execution, but firſt in intention; the Map, Epitome, and Compendium of what was made before him.

Three worlds there are, and Mankind is the fourth: The firſt is Elementarie; the ſecond a Celeſtiall world; the third Angelicall; and the fourth is Man, the little world. In the firſt is *ignis urens, a burning fire*: and this in the heavens, is *ignis fovens, a nouriſhing* and *quickning fire*: but in thoſe creatures above, ſeated in the ſupercelеſtiall world, it is *ignis ardens, & amor Seraphicus, an ardent, burning, and Seraphicall love*: and in the fourth are all theſe found at once. For firſt, as mans bodie is compounded of the Elements, he hath his ſhare of that warm fire in him. The influence of the Planets working on him, doth likewiſe ſhew the ſecond. And for the third, their hearts who burn within them, do declare it.

Neither

Neither was he made like other creatures, with a groveling look, or downward countenance, but with an erected viſage beholding the heavens, and with lordly looks well mixt with majeſtie.

He hath a bodie whoſe members are either *Principall* and *Radicall*, or elſe *Leſſe Principall* and *Officiall*.

The ſpirits heart, liver, brain, arteries, veins, and nerves.

His heart, liver, and brain, contain the vitall, naturall, and animall ſpirits; and theſe are carried by the arteries, veins, and nerves. The arteries carrie the vitall ſpirits from the heart. The veins carrie the naturall ſpirits from the liver, giving nouriſhment to every part. And the nerves carrie the animall ſpirits from the brain, being ſpirits for ſenſe and motion, and therefore called *animall ſpirits*: howbeit, the motive nerves ſpring from the marrow in the back; and the ſenſitive come from the brain.

The veins and the arteries go together.

Alſo know, that under every vein is an arterie: for whereſoever there goeth a vein to give nutriment, there goeth an arterie to bring the ſpirit of life. Neither is it but that the arteries lie deeper in the fleſh then the veins, becauſe they carrie and keep in them more precious blood then the veins keep; and are therefore, not onely further from outward dangers, but clothed alſo in two coats, whereas they veins have but one. Whereupon it is no hard thing to diſtinguiſh between theſe two veſſels of bloud, if we can but remember that the arterie is a veſſel of bloud ſpirituall or vitall; and the vein, a veſſel of bloud nutrimentall: for (as I ſaid before) the veins have their beginning from the liver, bringing from thence nutritive bloud to nouriſh every member of the bodie.

Paſſions have their ſeat in the heart.

Moreover, his heart is the ſeat of all paſſions; as in one inſtance may ſuffice: for being tranſported with fear, we call back the bloud to the heart, as to the place where fear prevaileth, the bloud going thither (as it were) to comfort and cheriſh the heart. And whereas it may

may ſeem that our anger is ſeated in the gall, love in the liver, and melancholie in the ſplene: it is anſwered, that thoſe humours placed in the gall, liver, and ſplene, are not the ſeat of the paſſions and affections; but they are the occaſion whereby the paſſions are ſtirred up: as the abundance of bloud in the liver, ſtirreth up the paſſion of love, which nevertheleſſe is placed and ſeated in the heart: and ſo of the reſt.

The humours ſtirre up the paſſions.

And again, ſeeing the vitall ſpirits proceed from the heart, it cannot be denied, but that this member liveth firſt, and dieth laſt.

The heart liveth firſt & dieth laſt.

The head.

And as the heart was the ſeat of all the paſſions, ſo the head is a ſeat and place for all the ſenſes, except the touch; for that is not onely in one place, but in all and every place, being ſpread quite through the whole bodie or iſle of man.

The eyes.

The eyes are the windows of the bodie; and albeit a man have two eyes in his head, yet he receiveth but one ſight at once, becauſe the optick nerves meet both in one.

The eares.

The eares be like certain doores, with Labyrinthicall entries, and crooked windings: and here again, although the eares be two, yet a man can heare but one ſound at once, becauſe his *acouſtick* nerves (like to the optick nerves) meet both in one.

The tongue.

His tongue diſcerneth taſtes: and albeit he have two eyes, and as many eares, yet his tongue is ſingle and alone. A man ſhould therefore heare and ſee more then he ſpeaketh; and when he ſpeaketh, not wrong his heart and ſecret thoughts, by uttering words with a double tongue: for *biliguis* is more then God made him; and double tongues ſhall be rooted out. Beſides, the lungs be the bellows of the voice, and are ſeated cloſe to the heart; to teach us, that ſpeech ought to be the interpreter of the heart, and not that a man may ſpeak one thing and think another.

The lungs.

The

The noſe. The noſe ſerveth not onely as a gutter for the excrements of the brain to flow and paſſe through, but alſo for a pipe of reſpiration to give and take our living breath, and to conduct the aire, and odoriferous ſmells up to the brain, for the conſervation and recreation of the animal ſpirits.

The hand. When the head is in danger, the hand caſts it ſelf up to ſave it. And in giving hands to man, the ſpeciall providence of God is to be marked: for he hath made him to take his meat with his hand, and hath not left him to gather and take it up with his lips, as the beaſts do; becauſe that would be a means to hinder his ſpeech by thickening his lips: as experience teacheth in thoſe, who either by nature, or by accident, have thick ſwollen lips cauſing them to ſpeak in the mouth, uttering their words very badly, and indiſtinctly. Neither could there be ſo many quick conceits of the mind, or curious inventions of ſundry artiſts, brought to perfection, without ſuch an inſtrumentall help as the hand.

The feet. The feet be the baſes of the bodie, carrying man like a lordly creature, with his face from earth, and eyes to heaven; that he might thither ſtrive to come at laſt, where he inhabiteth who gave him theſe, and all his other members elſe, which now I cannot ſtand to dilate upon at large. And when he had them all, and was framed out like a curious piece, *God breathed in his noſtrils the breath of life, and man became a living ſoul:* he then took his ſecond part, when his firſt was finiſhed, neither was that ſecond made till then: for in the infuſion it was created, and in the creation it was infuſed, to be the dweller in that houſe built out of clay, and reared from the duſt.

The ſoul.

How man was made according to Gods image.

And in this laſt piece, God ſtampt his image: for it conſiſted not in the figure of the bodie any otherwiſe then as the organe of the ſoul, and in that regard being a weapon

weapon with it unto righteouſneſſe, it had ſome ſhadow thereof. For, to put all out of doubt, the Apoſtle ſheweth how we are to underſtand the image of God in man; in one place ſpeaking thus, *Which after God is created in righteouſneſſe and true holineſſe*, Epheſ. 4. 24. And in another place, *Put on the new man, which is renewed in knowledge, after the image of him who created him*, Coloſſ. 3. 10. By which it appeareth that this image conſiſteth, not ſo much in any reſemblance between the ſubſtance of the ſoul and the eſſence of God (though both be immortall) nor yet in the naturall faculties thereof, as of underſtanding, will, and memorie, taken as emblemes of the Trinitie; but in the knowledge and illumination, holineſſe and juſtice of the ſoul, which are now wrought in man by grace, and then were given by creation. For that image is now loſt, and cannot be had till it be renewed: but the ſubſtance of the reaſonable ſoul, with the naturall faculties and powers thereof are not loſt, therefore therein is not expreſſed this image according to which mankind was made. Mankind, and not man alone: for Moſes addeth, that *male and female created he them*; to ſhew, that woman as well as man, was partaker of the ſame image: the laſt that had it, and yet the firſt that loſt it; for though ſhe were the laſt in creation, yet the firſt in tranſgreſſion as the Scripture ſpeaketh.

Woman made according to the image of God, as well as man.

But perhaps you will think the Apoſtle denieth this, ſaying, *The man is the image and glorie of God, but the woman is the glorie of the man.* In which it muſt be conſidered, that the Apoſtle denieth not the woman, as ſhe is a creature, to be made in the image of God: but ſpeaking as ſhe is a wife, and conſidering of them by themſelves, he then is more honourable and muſt have the preeminence; in which, the woman is rightly called the glorie of the man, becauſe ſhe was made for him, and put in ſubjection to him.

1. Cor. 11. 7.

How woman is the glorie of the man.

A

Quarl. upon Eſther, *Mad.* 3.

A womans rule ſhould be in ſuch a faſhion,
Onely to guide her houſhold, and her paſſion:
And her obedience never's out of ſeaſon,
So long as either husband laſts, or reaſon.
Ill thrives the hapleſſe familie, that ſhows
A cock that's ſilent, and a hen that crows.
I know not which live more unnaturall lives,
Obeying husbands, or commanding wives.

But to come more nearly to the creation of Woman; ſhe was made whileſt Adam ſlept: For when he had named the beaſts according to their natures, he was caſt into a ſleep: and, that God might find a help meet for him, he takes a help out of him; performing it rather ſleeping then waking, that neither Adams ſight might be offended, in ſeeing his ſide to be opened, and a rib taken forth, nor yet his ſenſe of feeling oppreſſed with the grief thereof: and therefore it is ſaid, *God cauſed*, not a *ſleep*, but *an heavie ſleep to fall upon man, and he ſlept.* Which in a myſtery ſignified that deadly ſleep of the ſecond Adam upon the croſſe, whoſe ſtripes were our healing and building up again, whoſe death was our life, and out of whoſe bleeding ſide was by a divine diſpenſation framed his Spouſe the Church.

It was then from the ſide of Man that Woman came, builded up out of a rib taken from thence: not made out of any part of his head, which (if we ſeek the meaning in a myſtery) ſhews that ſhe muſt not overtop or rule her husband: nor yet made out of any part of his foot, to ſhew that man may not uſe her as he pleaſeth, not trample or contemne her: but made out of a rib, taken from his ſide, and near his heart, that thereby he might remember to nouriſh, love, and cheriſh her, and uſe her like bone of his bone, and fleſh of his fleſh.

And

And being thus made, ſhe is married to Adam by God himſelf, who brought her unto him, to ſhew (ſaith *one) the ſacred authoritie of marriage, and of parents in marriage: a mutuall conſent and gratulation followeth likewiſe between the parties, leſt any one ſhould tyrannically abuſe his fatherly power, and force a marriage without either love or liking. And thus are two made one fleſh; in regard of one originall, equall right, mutuall conſent, and bodily conjunction.

*Purch. Tom. 1. lib. 1. cap. 3.

Fleſh of his fleſh, and bone made of his bone
He framed woman, making two of one.
But broke in two, he did a new ordain
That theſe ſame two ſhould be made one again:
Till ſingling death this ſacred knot undoe,
And part this new-made one, once more in two.
Yea ſince of rib firſt framed was a wife,
Let ribs be Hieroglyphicks of their life.
Ribs coaſt the heart, and gnard it round about,
And like a truſtie watch keep danger out;
So tender wives ſhould loyally impart
Their watchfull care to fence their ſpouſes heart.
All members elſe from out their places rove,
But ribs are firmly fixt and ſeldome move:
Women (like ribs) muſt keep their wonted home,
And not (like Dinah that was raviſht) rome.
If ribs be over bent, or handled rough,
They break; if let alone, they bend enough:
Women muſt (unconſtraind) be pliant ſtill,
And gently bending to their husbands will.
The ſacred Academy of mans life,
Is holy Wedlock in a happy wife.

Quarl. ibid.

And being thus made and married, they are bleſſed with the benediction of increaſe and multiplie: and

and were without doubt a very glorious pair, and goodly couple, having neither fault to hide, nor shame: and yet not so much glorious in the ornaments of beautie (which made them each to other amiable) as in the majestie and sovereigne power ingrafted in them to cause the creatures with an awfull fear and respective dread, come gently to them, submitting like subjects to their King. For (as one truely speaketh)

Quarl. upon Esther, Med. 3.

——————— Him he made
The Sov'reigne Lord of all; him all obey'd,
Yielding their lives (as tribute) to their King;
Both fish, and bird, and beast, and every thing.

Naked these couple were, but not ashamed; and yet not impudent or shamelesse creatures: for shame is the fruit of sinne; and therefore before sinne entred, this nakednesse of their bodies shewed the nakednesse and simplicitie of their minds. All which continued, till the sly envies of subtill Satan buzzed in their eares a cunningly deceiving note, and tainted their eyes with curiositie. For the fairnesse of the Apple helpt to hatch the foulnesse of the fault, gave longing to the palate, and action to the hand, to reach and convey it to the curious taste; and yet the taste could not then discern, how death and it went down together.

And now for the day of Adams fall: it is doubted by some whether it were on the day of his creation, or not rather some dayes after. But in all likelyhood it fell not out later than the cool of this very day whereon he was made.

For first, Satan was a murderer from the beginning, and therefore he delayed no time to purchase mans miserie.

Secondly, it was the sixthday that man was created, even as on the sixth day he was redeemed. By which it appeareth that he fell on the very day of his creation. Whereupon

upon * Theophylact maketh this obſervation, ſaying, *Sextâ die homo eſt conditus, qui et ſextâ horâ de ligno comedit: Sextâ quoque die et ſextâ horâ Chriſtus cruci eſt affixus: Quâ igitur horâ Dominus hominem condidit, eâdem et lapſum curavit.* By which he meaneth, that as man was formed the ſixth day, and did eat of the tree the ſixth houre: ſo Chriſt reforming man, and healing the fall, was faſtened to the tree the ſixth day and the ſixth houre. And hence alſo came that common ſaying concerning Adam, that* *In one and the ſame day he was formed and deformed,* not continuing in righteouſneſſe, and true holineſſe untill the Sabbath: for then (as ſome obſerve) he would have performed the ordinances of the Sabbath, which was to have eaten of the tree of life, and ſo have lived for ever, being never guiltie of that fall whoſe ach even yet the ſonnes of Adam feel.

* Upon Math. chap. 27.

* Brought. concent.

Thirdly, and ſurely Moſes making mention of many times, would never have omitted this time of the fall, except it had been preſently after the Creation. Credrenus therefore, another Greek writer, ſaith, that Adam fell the ſixth day of the firſt week.

Fourthly, beſides it muſt neceſſarily be granted that Adam fell before ever he knew his wife: otherwiſe Cain had been conceived without ſinne, becauſe preſently after the Man and Woman were made, God ſaid, *Increaſe and multiplie*; as in Geneſis 1. 28. is manifeſt: but it is a thing not to be imagined that Cain was conceived without ſinne, neither is it true that Adam accompanied with his wife, untill after he was caſt out of Paradiſe, as farre as I can find: Nor doth S. Auſtin but ſay, that the Woman ſtraitway after her Creation, before ſhe accompanied with Adam, became into the tranſgreſſion; otherwiſe Cain had been conceived without ſinne. Eve therefore and Mary may well be compared together, as thus: Eve being a Virgin, hearing the words of the ſer-

pent, and believing them, brought forth death: the Virgin Mary hearing the words of the Angel, and believing them, brought forth life; as Chryſoſtome ſpeaketh. Such is their reſemblance; and it very fitly ſerveth to teach us that the fall was ſoon after the Creation, even whilſt Eve (as well as Mary) was a Virgin.

Fifthly, to which purpoſe that place in the nine and fortieth Pſalme, at the 13. verſe, is very congruous, *viz.* that Adam lodged not one night in honour. For ſo, ſaith a Doctour, do the words ſignifie, if they be properly tranſlated. As for example, the word (ſaith he) is *lun*, which ſignifieth to lodge or ſtay all night: which by divers of the Rabbins is expounded of Adam, who continued not one night in Paradiſe, but fell on the ſelf ſame day of his Creation; which for the time of the yeare ſeems to be no further from the Spring, then the Promiſe of Chriſt was after this fall.

Dr Willet upon Geneſ. chap. 3. queſt. 31.

Finally, the bare narration ſheweth, that no famous action went between the Commandment and the Fall. And therefore in all likelihood it was on Friday, the ſixth day of the firſt week; which ſeems to be on the 22 day of Aprill, the Sun then entring into Aries, and giving beginning to the Spring, even as Chriſt was then promiſed for the quickning and reviving again of Man-kind, who alſo about the ſame time of the yeare did actually ſhed his bloud, and thereby paid the price of Mans Redemption.

And now after this time of Adams fall, both he and his poſteritie (for a good while together) had many years of life: the longeſt liver was Methuſalah; and the ſhorteſt, of any before the Floud, was Lamech. Adam had nine hundred and thirtie years, which wants ſo much of a thouſand as is the ordinarie term of a mans life in theſe latter dayes. And note that when this firſt Father died, Seth was 800 years old, Enos 695, Kenan 605, Mahalaleel.

halaleel 535, Jared 470, Henoch 308, Mathuſalah 243, and Lamech 56. Note likewiſe that about ſuch time as the ſaid Adam died, the Vernall Equinox was aſcended to the 14 day of Aprill, which at the time of his Creation was (as hath been ſaid) about the 22 of the ſame, and is now about the 10 of March. And as concerning Evah, if it be true which ſome have written, ſhe lived beyond the age of her husband, by the ſpace of tenne whole years. *Alſted. ex Mar. Scot.*

But were not theſe years of theirs ſhorter then ours? I anſwer, no. And yet upon ſuch a ſuppoſition of being ſhorter, three ſtrange opinions have been broached. 1. Some have thought that the years of the ancient Patriarchs were of no longer continuance then one of our Lunar monthes: grounding this as an obſervation agreeable to the practice of the Egyptians, who in times paſt are ſuppoſed to have reckoned thus. 2. Others ſay that three of our Moneths made up with them a full and compleat yeare: by meanes whereof one of our years ſhould jump juſt with foure of theirs. 3. And a third fancie is, that tenne years in thoſe times, were no longer then one yeare now.

But that all theſe are weak and childiſh thoughts ſhall well appear. For

First, if each ſeverall Moon, accounted from one conjunction to another, made up a full and compleat yeare, then it muſt needs follow that men in this preſent age, when the world is known to be old, do live longer then in thoſe dayes when all things were in their full ſtrength: which cannot be; becauſe the condition of their bodies was not then decayed, nor the aire corrupted, nor intemperance uſed, nor the fruits of the earth of a feeble nouriſhment: all which are the friends and companions of a long-laſting life. And ſuch friendly companions do we want, but they enjoyed them all. For firſt Adam was the *The firſt opinion refelled.*

immediate work of God; and being come (as it were) newly from the ſhop of his Creatour, he could not be like an houſe built of rotten timber or mouldring ſtone, but of a farre ſtronger conſtitution then this weak age affords. And therefore he begat no ſuch Pygmies as are now, whoſe ſtrongeſt ones are in a manner but as reeds compared to the Cedars of thoſe times, whoſe bodies were never waſted with ſucceſſion of ſickneſſes, nor weakned with diſeaſes, but very well able to continue a long time, yea and well armed to reſiſt ſuch few things as were then contrarie to health. For there was a great gap of time ſure from the dayes of Adam to the dayes of Galen: and yet I find it witneſſed by Authours, that in late times, no longer ago then the dayes of * Galen, men were of ſuch able bodies that they would ordinarily bleed to the value of ſix pound weight; whereas now, ſix or eight ounces (ſaith a learned Knight in his Hiſtorie of the world) is (for the moſt part) found to be ſufficient: a great argument to prove the ſtrength of their bodies which have been before us, and the weakneſſe of ours. Secondly in the worlds firſt age they had a thinne and pure aire, not as then corrupted with vapours or terrene Exhalations, ſuch as after times were peſtred with, when once the Floud had ſopt the earth and drenched it with overflowings. And thirdly, their manner of life and education differed much from ours; which muſt needs prove theirs longer. For their tender infants were not ſo tenderly brought up: waſtfull riot was a ſtranger to them, and mixture of meats as then unknown; by means whereof Nature was never oppreſſed with over-weightie burdens, nor forced to reel and ſtagger with her load. Gula made then no way for Galen nor Bacchus for Eſculapius; which now in truth we cannot ſay: nor is there length of dayes to ſuch as theſe; for as *plures pereunt gulâ quàm gladio*, ſo even the

* He flouriſhed about the yeare of our Lord 140.

the earth it ſelf is oftentimes a friend to cover the faults bold Empericks commit. And fourthly the fruits of the Earth were much more nouriſhable and healthfull before the Floud then afterwards: For through the ſalt Waters of the great Deep the Earth became, not onely leſſe fertil then before, but alſo the fruits of the ground were much infeebled in their vigour, and made more unapt for ſuſtenance.

All which conſidered, there can be no poſſibilitie that our lives ſhould be either as long or longer then theirs: and yet they cannot but be ſo, if the ſpace between one Conjunction of the Moon and another be the juſt length of their yeare. As for example:

Methuſalah was the longeſt liver of any one amongſt them, and his years are recorded to be *969*: which number will amount but to foureſcore of our years and nine moneths, if we admit of ſuch a Lunar reckoning. Again, Adam lived nine hundred and thirtie years: which nine hundred and thirtie will make but 77 and ſome odde dayes for the whole time of Adams life. Further, Seth lived *912* years; which *912*, by this means, will be but ſeventie and ſix. Enos had *905*; which make but 75 and five moneths. Kenan had *910*, which make but 75 and tenne moneths: and ſo proportionably of the reſt: By which it appeareth that not any of the Patriarchs (except Mathuſalah) could attain to 80 years; beyond which many in our dayes have lived: yea and by this Lunar reckoning, how old I pray you were they when they begat their Children? ſurely even Children themſelves; as afterwards ſhall better appear.

But ſecondly (ſith one moneth will not) let us ſee whether three moneths will ſerve them for a yeare: For ſuch is the phancie of ſome, which is every jot as bad a tenet as the other. For did not the Ark reſt it ſelf upon the Mountains of Arrarat the ſeventh Moneth, on the ſeventeenth

The ſecond opinion refelled.

Gen. 8. 4. 5. See alſo verſ. 14.

venteenth day of the Moneth ? And also, did not the Waters decrease untill the tenth Moneth ; upon the first day whereof the Mountain tops appeared ? Which being so, they are soon answered whose idle brains doat about either one Moneth, or three Moneths, in one of the Patriarchs years : for we see, not onely the Seventh Moneth, but the Tenth Moneth mentioned : and not onely the first day of a Moneth, but the Seventeenth day also. And indeed, though it were frequent among the Jews to reckon their Moneths by the course of the Moon ; yet it is plain enough, that they had also a yeare of dayes, consisting of twelve Moneths, according to the course of the Sunne. Whereupon I may not omit what is observed by Expositours ; namely, that a yeare hath the name in Hebrew from *Shanah*, signifying a *Changing* or *Iteration*; which is in regard of the Sunnes returning, after a years end, to the same point of Heaven where it first began. And as for the circuit of the Moon, which commonly we tearm a Moneth, it is derived (say they) of another word signifying to *Renew* ; because, in that space, the Moon is again renewed. Neither is it found in any place of Scripture, that these names are the one of them taken to signifie the other ; but by the one is meant a yeare, and by the other a Moneth.

Gib. on Genes. chap. 5 quest. 2. Ainsworth on Gen. chap. 2 ver. 14.

The third opinion refelled.

Thirdly concerning such as would have tenne of the ancient years as long, and no longer then one of ours. It is answered that these dreamers bring in as drie an assertion as the former. For might this conjecture passe for current, then men should be capable of Generation at seven, eight, nine, and ten years of age; nay some must beget children at little above six years old. As for example, Seth is said to be 105 when he begat Enos : which 105 (by this account) amounts but to tenne years and six Moneths. Again, Enos begat Kenan at 90 : which number by the former reckoning, will make but nine; because there are but 9 times tenne in 90. And as for

Kenan

Kenan he could be but 7 when he begat Mahalaleel. And Mahalaleel but ſix and an half, when he begat Jared: and of like age alſo muſt Henoch be when he begat Methuſalah. All which are but groſſe abſurdities: and ridiculouſly have they erred whoſe follie hath been either the hatchers or nouriſhers of theſe opinions.

Let it therefore be that Adams time of life was 930 years, conſiſting of 12 Moneths, meaſured by the courſe of the Sunne through the 12 ſignes of the Zodiack, as we meaſure now; and when theſe were ended, then he died: but had he not ſinned, there had been no death to meddle with him; both bodie and ſoul had been tranſlated from earth to heaven, as the ancient Fathers have declared. And perhaps one other cauſe, why he lived ſo long after his Fall, was by reaſon of the relicks of that naturall immortality, which was in him before the Fall. For (as one ſpeaketh very worthily) if the Egyptians could embalm bodies artificially, that they could continue without corruption for ſo many hundred years; how much more could God make Adam's bodie to have continued without corruption naturally, if he had ſtood in innocencie? Wherefore I will now conclude, and concluding ſay,

*God * ſaw the works which he had made,* *Gen. 1. 31.
And good he found them all:
If therefore now they faint or fade,
'Tis cauſe Man caught a fall.
*For ev'ry creature * groneth deep;* *See Rom. 8. 19. 20. 21. 22. 23.
A change they wiſh to ſee.
They travail, ſeek, they want and weep,
Till ſonnes of God be free.

For

For then they likewise freedome have,
No longer kept in pain:
Come therefore quickly (Lord) we crave,
Renew this world again:
And in its kind, it being free,
Will praise thy name as well as we.

FINIS.

Soli Deo Gloria.

A Poſtſcript to the Reader.

Gentle Reader,

HAving in the firſt chapter of this book, not onely ſpoke of the worlds ending, but alſo of the manner how, and of the new heaven and the new earth, which (according to Gods promiſe) we * expect; I thought it not amiſſe further to explain this matter to thee in a word or two, as followeth; that thereby thou maiſt the better underſtand when the time of this change beginneth. * 2. Pet. 3. 13.

In Revelat. 21. 1. thus we reade; *I ſaw a new heaven and a new earth: for the firſt heaven and the firſt earth were paſſed away.*

Now note the time; namely, That they paſſed not away till the Judge ſate upon the white throne, after the expiration of the Thouſand years mentioned in the twentieth chapter of the ſame propheſie, at the very end of the world. For, at the eleventh and twelfth verſes of the ſaid twentieth chapter, all being finiſhed concerning the thouſand years, the warre of Gog and Magog, and caſting the devil into the lake of fire and brimſtone, this is ſhewed to be next; namely, that the great white throne is ſet, the Judge appeareth, the heaven and earth flies away, and the dead both great and ſmall are raiſed to ſtand before God.

And therefore the new heaven and the new earth, which (according to Gods promiſe) we do expect, are not to be till the end of the world. They are miſtaken therefore who ſay they are to be within the compaſſe of the thouſand years when the Jews are converted, and the Mar-

tyrs raiſed from the dead to reigne with Chriſt: For by theſe two texts it appeareth, that they are not to be till the time of the generall Reſurrection, when all without difference ſhall ariſe.

Moreover, I requeſt thee (good Reader) to correct with thy penne ſome faults eſcaped in the number of figures, which I would ſhould be carefully amended: As in pag. the 17, for the 19 yeare of Nebuchadnezzar, reade the 8 yeare of Nebuchadnezzar: and for 471, reade 458. Then, in pag. the 36, for 3948, reade 3931. pag. 352 *for the* 16 Provinces. *read* the 17 Provinces. and pag. 65 line 20 *read* as the making &c.

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